

# 2733 - Town of Herndon - Flood Resilience Resource Assessment

## Application Details

Funding Opportunity: 2335-Virginia Community Flood Preparedness Fund - Capacity Building/Planning Grants - CY24 Round 5  
Funding Opportunity Due Date: Mar 28, 2025 11:59 PM  
Program Area: Virginia Community Flood Preparedness Fund  
Status: Under Review  
Stage: Final Application  
  
Initial Submit Date: Jan 24, 2025 3:18 PM  
Initially Submitted By: Casey Kight  
Last Submit Date:  
Last Submitted By:

## Contact Information

### Primary Contact Information

Active User\*: Yes  
Type: External User  
Name\*: Mr. Casey Middle Name Kight  
Salutation First Name Last Name  
Title:  
Email\*: casey.kight@kimley-horn.com  
Address\*: 11400 Commerce Park Drive

Reston Virginia 20191  
City State/Province Postal Code/Zip

Phone\*: 703-214-2439 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:**

## VCPPF Applicant Information

### **Project Description**

**Name of Local Government\*:**

Town of Herndon

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

**NFIP/DCR Community Identification**

510052

**Number (CID)\*:**

If a state or federally recognized Indian tribe,

**Name of Tribe:**

**Authorized Individual\*:**

Richard Smith  
First Name Last Name

**Mailing Address\*:**

777 Lynn Street  
Address Line 1  
Address Line 2  
  
Herndon Virginia 20170  
City State Zip Code

**Telephone Number\*:**

703-435-6800

**Cell Phone Number\*:**

703-435-6800

**Email\*:**

[richard.smith@herndon-va.gov](mailto:richard.smith@herndon-va.gov)

Is the contact person different than the authorized individual?

**Contact Person\*:**

No

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

**Project Description\*:**

Town of Herndon Flood Resilience Resource Assessment - The Town of Herndon does not have a Resilience Plan, Resilience Program, or staff focused on Resilience. This Resource Assessment intends to analyze the Town's current programmatic capabilities for implementing a Resilience Plan and Resilience Program and involves an in-depth assessment to determine Town needs based on available Town resources to adequately develop an implementable Town wide Resilience Plan and Resilience Program.

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

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

**Benefit a low-income geographic area\*:** Yes

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

**Census Block(s) Where Project will Occur\*:** 4808.01 4809.01 4809.02

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

**Is Project Located in a Special Flood Hazard Area?\***: No

**Flood Zone(s) (if applicable):**

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

## Eligibility - Round 4

### **Eligibility**

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

**Local Government\*:** Yes

Yes - Eligible for consideration

No - Not eligible for consideration

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

**Letters of Support\*:** No

Yes - Eligible for consideration

No - Not eligible for consideration

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

**Previously Funded\*:** No

Yes - Not eligible for consideration

No - Eligible for consideration

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

**Evidence of Match Funds\*:** Yes

Yes - Eligible for consideration

No - Not eligible for consideration

N/A- Match not required

## Scoring Criteria for Capacity Building & Planning - Round 4

### **Scoring**

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

#### **Capacity Building and Planning\*:**

Floodplain Staff Capacity, Other Capacity Building and Planning Activities, Resource assessments, planning, strategies, and development - Policy management and/or development, Resource assessments, planning, strategies, and development - Stakeholder engagement and strategies.

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

Social Vulnerability Scoring:

Very High Social Vulnerability (More than 1.5)

High Social Vulnerability (1.0 to 1.5)

Moderate Social Vulnerability (0.0 to 1.0)

Low Social Vulnerability (-1.0 to 0.0)

Very Low Social Vulnerability (Less than -1.0)

**Socially Vulnerable\*:** High Social Vulnerability (1.0 to 1.5)

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

**NFIP\*:** Yes

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

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

**Low-Income Geographic Area\*:** Yes

Does this project provide ?community scale? benefits?

**Community Scale Benefits\*:** More than one census block

**Comments:**

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

### **Scope of Work - General Information**

**Upload your Scope of Work**

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

**Scope of Work Attachment\*:**

[2025\\_01\\_24\\_Town of Herndon Final CFPF Application Package - Resource Assessment.pdf](#)

**Comments:**

Full Application

### **Budget Narrative**

**Budget Narrative Attachment\*:**

[1.2 - Appendix B - Budget Narrative.pdf](#)

**Comments:**

## Scope of Work Supporting Information - Capacity Building and Planning

### **Scope of Work Supporting Information**

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

**Resource need identification\*:**

The Town of Herndon does not have a Resilience Plan, Resilience Program, or staff focused on Resilience. This Resource Assessment intends to analyze the Town's current programmatic capabilities for implementing a Resilience Plan and Resilience Program. This involves an in-depth assessment of Town needs to adequately implement a Resilience Plan and Program based on available Town resources and adjacent community Resilience Plans and Programs. Kimley-Horn will also develop an outline and recommended actions for implementing the Town's Resilience Plan and Program through future Community Flood Preparedness Fund (CFPF) cycles. The Town, in conjunction with an engineering consulting firm, will perform a Resource Assessment to identify current programmatic capabilities and resources, and anticipated needs and resources for developing a comprehensive and implementable Resilience Plan and Program for the Town. The Town currently lacks staff resources or in house expertise to undertake this effort singularly and thus outside resources are required for the completion of this task.

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

**Development of Existing or New Staff\*:**

This resource assessment is intended to analyze the Town's current staffing needs as part of the implementation of a Town wide Resilience Program. Through this resource assessment the Town will analyze internal Town resilience related personnel resource as well as personnel resources for other jurisdictions and develop a custom personnel plan, in accordance with available Town resources, to support the implementation of a Town wide Resilience Program.

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

**Resource Development Strategies\*:**

This resource assessment will identify Town needs for implementing a Resilience Program. Through this assessment, the Town will identify a number of funding strategies that may be further developed including a budget modifications, tax adjustments, stormwater utility implementation, and others. The resilience personnel overseeing this program will also be responsible for developing a funding program that will leverage Town resources along with local, state and federal grant sponsors.

Describe policy management and/or development plans

**Policy management and/or development\*:**

The proposed recommendations from this resource assessment will be utilized to drive Policy decisions regarding the Town Resilience Program. Policy decisions will be made through formal meetings and presentations with Town Council after thoroughly engaging stakeholders and the community.

Describe plans for stakeholder identification, outreach, and education strategies

**Stakeholder identification, outreach, and education strategies\*:**

The ~25,000 residents of the Town of Herndon are the stakeholders associated with this resource assessment. On behalf of the residents, Town staff will coordinate with the Consultant and be responsible for execution of this proposed resource assessment. Town staff intends to expand stakeholders, as this resource assessment recommends.

# Budget

## Budget Summary

### Grant Matching Requirement\*:

LOW INCOME - Planning and Capacity Building - Fund 90%/Match 10%

\*Match requirements for Planning and Capacity Building in low-income geographic areas will not require match for applications requesting less than \$3,000.  
Is a match waiver being requested?

**Match Waiver Request** No

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

\*:

**I certify that my project is in a low-income geographic area:** Yes

**Total Project Amount (Request + Match)\*:** \$88,653.00

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

**REQUIRED Match Percentage Amount:** \$8,865.30

## BUDGET TOTALS

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

**Match Percentage:** 10.00%

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

**Total Requested Fund Amount:** \$79,788.29

**Total Match Amount:** \$8,865.36

**TOTAL:** \$88,653.65

### 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
Contultant Proposal	\$79,788.29	\$8,865.36	Stormwater Fund
	<b>\$79,788.29</b>	<b>\$8,865.36</b>	

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

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

## **Other Direct Costs**

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

## **Supporting Documentation - General**

### **Supporting Documentation**

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)		Town Map Exhibit	<a href="#">3.1 - Town Map Exhibit.pdf</a>	pdf	6 MB	01/24/2025 07:40 AM
FIRMette of the project area(s) (Projects/Studies)		Town wide FIRM or Firmette	<a href="#">3.2 - FIRM or FIRMETTE.pdf</a>	pdf	1 MB	01/24/2025 07:44 AM
Historic flood damage data and/or images (Projects/Studies)						
Alink to or a copy of the current floodplain ordinance		Town Floodplain Ordinance	<a href="#">3.3 - Floodplain Ordinance.pdf</a>	pdf	7 MB	01/24/2025 07:41 AM
Maintenance and management plan for project						
Alink to or a copy of the current hazard mitigation plan						
Alink to or a copy of the current comprehensive plan		Town Comprehensive Plan	<a href="#">3.5 - Comprehensive Plan Herndon_2050_Staff_Presentation.pdf</a>	pdf	1 MB	01/24/2025 07:41 AM
Social vulnerability index score(s) for the project area		Social Vulnerability Map & Score	<a href="#">3.6 - VFRIS Social Vulnerability.pdf</a>	pdf	1 MB	01/24/2025 07:42 AM
Authorization to request funding from the Fund from governing body or chief executive of the local government		Authorization	<a href="#">3.7 - Authorization to Request Funding.pdf</a>	pdf	65 KB	01/24/2025 03:12 PM
Signed pledge agreement from each contributing organization		Pledge	<a href="#">3.8 - Pledge.pdf</a>	pdf	55 KB	01/24/2025 03:12 PM

### Maintenance Plan

*Benefit-cost analysis must be submitted with project applications over \$2,000,000. in lieu of using the FEMA benefit-cost analysis tool, applicants may submit a narrative to describe in detail the cost benefits and value. The narrative must explicitly indicate the risk reduction benefits of a flood mitigation project and compares those benefits to its cost-effectiveness.*

### Benefit Cost Analysis

### Other Relevant Attachments

**Letters of Support**

Description	File Name	Type	Size	Upload Date
No files attached.				



Town of Herndon  
Community Flood Prevention Fund – Town Resource Assessment  
Round 5 - Virginia Community Flood Preparedness Fund Application Package

## Town of Herndon



### Community Flood Prevention Fund – Town Resource Assessment

Virginia Community Flood Preparedness Fund  
Application Package

## Round 5 - Virginia CFPF Grant Application

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1. Appendix A: Application
2. Appendix B: Budget Narrative
3. Appendix C: Checklist All Categories
4. Appendix D: Scoring Criteria for Studies

#### Attachment 2 – Proposed Services

1. Summary of Proposed Services

#### Attachment 3– CFPF Grant Narratives Supporting Documents

1. Detailed Map of Project Area
2. Firmette of the Project Area
3. Town of Herndon - Current Floodplain Ordinance
4. Town of Herndon – Comprehensive Plan
5. Town of Herndon – Social Vulnerability Map & Index Score
6. Authorization to request funding from the Fund and/or RVRF Match loan from governing body or chief executive of the local government
7. Signed pledge agreement from each contributing organization
8. Stormwater Fund Documentation

## **Introduction**

The Town of Herndon has prepared this Community Flood Prevention Fund – Town Resource Assessment Application Package to request matching funds for implementing a Resilience Plan and Resilience Program. The Town of Herndon intends to apply for matching funds in the Study category. The Town of Herndon is a 4.29 square mile independent Town located within Fairfax County in northern Virginia. The Town is highly developed and is mainly compromised of residential and commercial lots.

## **Background**

The Town of Herndon does not have a Resilience Plan, Resilience Program, or staff focused on Resilience. This Resource Assessment intends to analyze the Town's current programmatic capabilities for implementing a Resilience Plan and Resilience Program. This involves an in-depth assessment of Town needs to adequately implement a Resilience Plan and Program based on available Town resources and adjacent community Resilience Plans and Programs. Kimley-Horn will also develop an outline and recommended actions for implementing the Town's Resilience Plan and Program through future Community Flood Preparedness Fund (CFPF) cycles.

## **Scope of Work Narrative**

### **Capacity Needs**

The Town, in conjunction with an engineering consulting firm, will perform a Resource Assessment to identify current programmatic capabilities and resources, and anticipated needs and resources for developing a comprehensive and implementable Resilience Plan and Program for the Town. The Town currently lacks staff resources or in house expertise to undertake this effort singularly and thus outside resources are required for the completion of this task. A detailed map showing the limits of the Town and its resources is provided in Attachment 3.1 and a FIRM/Firmette of the Town is provided in Attachment 3.2.

### **Goals and Objectives**

The goal of the is to develop an outline and recommended actions for implementing the Town's Resilience Plans and Programs through future Community Flood Preparedness Fund (CFPF) cycles. This assessment includes, but is not limited to, identifying the needs for staffing, infrastructure, operations, and funding. This resource assessment will also analyze the Town's Current Floodplain Ordinance, provided in Attachment 3.3 and Comprehensive Plan, provided in Attachment 3.4, to assist with the preparation of a Resilience Plan and implementation of a Resilience Program.

### **Social Vulnerability**

According to the Virginia Flood Risk Information System (VFRIS), approximately 50% of the Town has a moderate to high Social Vulnerability Index. Portions of two (2) Virginia Designated

Qualified Opportunity Zones (51059481000 & 51107611700) are physically located in the Town and socially part of the Town. Both of these areas are also rated as having a Moderate or High Social Vulnerability Index. The VFRIS Social Vulnerability Index (SVI) Map for the Town of Herndon and immediately adjacent areas is provided in Attachment 3.5.

The Town of Herndon has a median household income of \$141,418. The median household income for the Virginia Designated Opportunity Zones is \$105,125 (51059481000) and \$126,224 (51107611700) which is 74% and 89% of the Town's median household income.

### Stakeholders

The ~25,000 residents of the Town of Herndon are the stakeholders associated with this resource assessment. On behalf of the residents, Town staff will coordinate with the Consultant and be responsible for execution of this proposed resource assessment. Town staff intends to expand stakeholders, as this resource assessment recommends.

### Implementation Plan and Timeline

This resource assessment will begin in accordance with the timelines required for community Capacity Building, as identified in the 2024 CFPF Manual and likely continue into the new fiscal year on July 1, 2025. The Town would like to note this is an anticipated timeline and will be finalized upon grant award.

### Outputs and Measures

The output of this resource assessment is a comprehensive evaluation of the current Town programmatic capabilities and available resources, and the anticipated resource needs to assist with developing a Resilience Plan and Program. This resource assessment will make recommendations for implementing a Resilience Program that will include resource needs for staffing, infrastructure, operations, and funding. The measure of this output will be future Town implementation of a Resilience Program.

### Maintaining Capacity

At this time, the Town does not anticipate the need for continuing support for development of the Community Flood Prevention Fund – Town Resource Assessment.

### Budget Narrative

#### Estimated Total Project Cost

Appendix B – Budget Narrative is provided in Attachment 1.2. A detailed budget and narrative for all costs is provided below.

The estimated total project cost for the development of the Community Flood Prevention Fund – Town Resource Assessment is \$88,653.65. The Town has coordinated with a consultant to provide an estimated summary of proposed services and associated cost. This document has

been included in Attachment 1.2 and includes an hourly breakdown based on anticipated tasks to be conducted by a consultant in the development of the Community Flood Prevention Fund – Town Resource Assessment.

Amount of Funds Requested

Per the 2024 CFPF Manual, the Town is requesting a 10% Town match and a 90% CFPF Grant match of the total project cost. Based on the Estimated Total Project cost highlighted above, the Town is requesting \$79,788.24 with this grant application package. This match will be utilized to assist with the overall cost of developing the Community Flood Prevention Fund – Town Resource Assessment. As mentioned above, an estimated summary of proposed services and associated cost has been included in Attachment 2.1. This includes an hourly breakdown based on anticipated tasks to be conducted by a consultant in the development of the Community Flood Prevention Fund – Town Resource Assessment.

Amount of Cash Funds Available

The Town intends to allocate a portion of the Town of Herndon Stormwater Fund for this study. The study has been included within the approved FY2025 proposed budget as “Community Flood Prevention Fund – Town Resource Assessment”, which has an available budget of \$1.3M. The Town has reserved \$25,000 of available matching funds from the Town of Herndon Stormwater Fund as part of this application package. Stormwater Fund information is provided in Attachment 3.8. The Stormwater Fund is available to the Town’s Public Works division to complete engineering functions and manage capital improvement projects for stormwater related needs within the Town.

## Attachment 1

### CFPF Grant Narratives Supporting Documents

#### Attachment 1 – Outline

1. Appendix A - Application
2. Appendix B – Budget Narrative
3. Appendix C – Checklist
4. Appendix D – Scoring Criteria



**Attachment 1.1**  
**Appendix A: Application**

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

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

**Name of Local Government:**

**Category Being Applied for (check one):**

Capacity Building/Planning

Project

Study

**NFIP/DCR Community Identification Number (CID)** 510052

**Name of Authorized Official and Title:** Richard Smith, P.E.

**Signature of Authorized Official:** 

**Mailing Address (1):** 777 Lynn Street

**Mailing Address (2):** \_\_\_\_\_

**City:** Herndon      **State:** Virginia      **Zip:** 20170

**Telephone Number:** (703) 435-6804      **Cell Phone Number:** (\_\_\_\_\_) \_\_\_\_\_

**Email Address:** richard.smith@herndon-va.gov

**Contact and Title (If different from authorized official):** \_\_\_\_\_

**Mailing Address (1):** 777 Lynn Street

**Mailing Address (2):** \_\_\_\_\_

**City:** Herndon      **State:** Virginia      **Zip:** 20170

**Telephone Number:** (703) 435-6804      **Cell Phone Number:** (\_\_\_\_) \_\_\_\_\_

**Email Address:** richard.smith@herndon-va.gov

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

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

**Capacity Building and Planning Grants**

- Floodplain Staff Capacity.
- Resilience Plan Development
  - 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):** \_\_\_\_\_

**NFIP Community Identification Number (CID#) :** \_\_\_\_\_

**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):** Zone AE, Zone X

**Flood Insurance Rate Map Number(s) (If Applicable):** 510052

**Total Cost of Project:** \$88,653.65

**Total Amount Requested** \$79,788.29

**Amount Requested as Grant** \$79,788.29

**Amount Requested as Project Loan (Long-Term, not including short-term loans for up-front costs)**  
\$0.00

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

\$0.00

**Amount Requested as Short-Term loan for Up-Front Costs (not to exceed 20% of amount requested as Grant)** \$0.00

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

**For informational purposes only:** Supplemental information for loan requests may include but are not limited to the following. This information will be collected AFTER a CFPF award is made, prior to the signing of a grant agreement.

- General Obligation
- Lease, Revenue
- Special Fund Revenue
- Moral obligation from other government entity)
- Desired loan term
- Since the date of your latest financial statements, any new debt
- Pending or potential litigation by or against the applicant
- Five years of current audited financial statements (FY18-22) or refer to website if posted
- Capital Improvement Plan
- Financial Policies
- List of the ten largest employers in the jurisdiction.
- List of the ten largest taxpayers in the jurisdiction

***All loan requests are subject to credit review and approval by Virginia Resources Authority.***



**Attachment 1.2**  
**Appendix B: Budget Narrative**

## Appendix B: Budget Narrative Template

<p><b>Applicant</b>  <b>Name: Community Flood Preparedness Fund &amp; Resilient Virginia Revolving Loan Fund</b></p> <p><b>Detailed Budget Narrative</b></p> <p>Period of Performance: <u>Spring 2025</u> through <u>Winter 2025</u>  Submission Date: <u>12/31/2025</u></p>	<p>Town of Herndon</p>								
<b>Grand Total State Funding Request</b> \$ 79,788.29									
<b>Grand Total Local Share of Project</b> \$ 8,865.36									
<b>Federal Funding (if applicable)</b> \$									
<b>Project Grand Total</b> \$ 88,653.65									
<b>Locality Cost Match</b> % 10									
Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						\$8,865.36			\$8,865.36
State Share – CFPF Grant						\$79,788.29			\$79,788.29
State Share – RVRF Match Loan									
Pre-Award/Startup									
Maintenance									
Total	\$	\$	\$	\$	\$	\$ 88,653.65	\$	\$	\$ 88,653.65



**Attachment 1.3**  
**Appendix C: 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

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- Detailed map of the project area(s) (Projects/Studies)
- FIRMette of the project area(s) (Projects/Studies)      FIRM Provided
- 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
- 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
- Letter of support from impacted stakeholders
- Budget Narrative
- Supporting Documentation, including the Benefit-Cost Analysis tool or narrative (for projects over \$2 million)
- 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
- Detailed budget and narrative for all costs



**Attachment 1.4**  
**Appendix D: Scoring Criteria**

## **Appendix D: Scoring Criteria**

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

### **SCORING CRITERIA PER CATEGORY**

#### **Projects**

Eligible Projects, up to 30 points.

- Acquisition (30)
- Wetland/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's* "Floodplain and Flooding Resilience" layer or a similar data driven analytic tool, Dam removal, Stream bank restoration or stabilization, Restoration of floodplains to natural and beneficial function. (25)
- Other nature-based approach (20)
- Hybrid approach resulting in nature-based solution (15)
- All other projects (10)

Social Vulnerability Index Score, up to 10 points.

- Very High Social Vulnerability (More than 1.5) (10)
- High Social Vulnerability (1.0 to 1.5) (8)
- Moderate Social Vulnerability (0.0 to 1.0) (5)
- Low Social Vulnerability (-1.0 to 0.0) (0)
- Very Low Social Vulnerability (Less than -1.0) (0)

Community scale of benefits, up to 30 points.

- More than one census block (30)
- 50-100% of census block (25)
- 25-49% of census block (20)
- Less than 25% of census block (0)

Expected lifespan of project, up to 10 points.

- 10 -14 Years (3)
- 15 - 20 Years (5)
- Over 20 Years (10)

Remedy for NFIP probation or suspension (*yes 5, no 0*)

Proposed project part of a low-income geographic area (*yes 10, no 0*)

Proposed project implements a Chesapeake Bay TMDL BMP (*yes 5, no 0*)

### **SCORING CRITERIA PER CATEGORY**

#### **Studies**

Revising floodplain ordinances to maintain compliance with the NFIP or to incorporate higher standards that may reduce the risk of flood damage, *30 points*.

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, *25 points*.

Conducting hydrologic and hydraulic studies of floodplains. Applicants who create new maps must apply for a Letter of Map Change through the Federal Emergency Management Agency (FEMA), *15 points*.

Studies and Data Collection of Statewide and Regional Significance. Funding of studies of statewide and regional significance and proposals will be considered for the studies listed below, *Up to 45 points*.

- Updating precipitation data and IDF information (rain intensity, duration, frequency estimates) including such data at a sub-state or regional scale on a periodic basis. (45)
- Regional relative sea level rise projections for use in determining future impacts. (45)
- Vulnerability analysis either statewide or regionally to state transportation, water supply, water treatment, impounding structures, or other significant and vital infrastructure from flooding. (45)
- Flash flood studies and modeling in riverine regions of the state. (45)
- Statewide or regional stream gauge monitoring to include expansion of existing gauge networks. (45)
- New or updated delineations of areas of recurrent flooding, stormwater flooding, and storm surge vulnerability in coastal areas that include projections for future conditions based on sea level rise, more intense rainfall events, or other relevant flood risk factors. (45)
- Regional flood studies in riverine communities that may include watershed scale evaluation, updated estimates of rainfall intensity, or other information. (45)
- Regional hydrologic and hydraulic studies of floodplains. (45)
- Studies of potential land use strategies that could be implemented by a local government to reduce or mitigate damage from coastal or riverine flooding. (40)
- Other proposals that will significantly improve protection from flooding on a statewide or regional basis (35)

Social Vulnerability Index Score, up to 10 points.

- Very High Social Vulnerability (More than 1.5) (10)
- High Social Vulnerability (1.0 to 1.5) (8)
- Moderate Social Vulnerability (0.0 to 1.0) (5)
- Low Social Vulnerability (-1.0 to 0.0) (0)
- Very Low Social Vulnerability (Less than -1.0) (0)

Remedy for NFIP probation or suspension (*yes 5, no 0*)

Proposed project part of a low-income geographic area (*yes 10, no 0*)

Proposed project implements a Chesapeake Bay TMDL BMP (*yes 5, no 0*)

## **SCORING CRITERIA PER CATEGORY**

### **Capacity Building and Planning**

Eligible Capacity Building and Planning Activities. Up to 100 points.

Development of a new resilience plan (95)

Revisions to existing resilience plans and integration of comprehensive and hazard

mitigation plans (60)

Resource assessments, planning, strategies, and development (40)

Policy management and/or development (35)

Stakeholder engagement and strategies (35)

Goal planning, implementation, and evaluation (25)

Long term maintenance strategy (25)

Other proposals that will significantly improve protection from flooding on a statewide or regional basis approved by the Department (15)

Social Vulnerability Index Score, up to 10 points.

- Very High Social Vulnerability (More than 1.5) (10)
- High Social Vulnerability (1.0 to 1.5) (8)
- Moderate Social Vulnerability (0.0 to 1.0) (5)
- Low Social Vulnerability (-1.0 to 0.0) (0)
- Very Low Social Vulnerability (Less than -1.0) (0)

Community scale of benefits, up to 30 points.

- More than one census block (30)
- 50-100% of census block (25)
- 25-49% of census block (20)
- Less than 25% of census block (0)

Remedy for NFIP probation or suspension (yes 5, no 0)

Proposed project part of a low-income geographic area (yes 5, no 0)

## Attachment 2

### CFPF Grant Narratives Supporting Documents

#### Attachment 2 – Outline

##### 1. Proposed Summary of Services



**Attachment 2.1**  
**Proposed Summary of Services**



**Task Order Proposal for  
Community Flood Prevention Fund – Town Resource Assessment**

Submitted to:

**Town of Herndon, Virginia**

January 13, 2025

## **PROJECT UNDERSTANDING**

The Town of Herndon does not have a Resilience Program or staff focused on Resilience. This proposed scope of work intends to analyze the Town's current programmatic capabilities for implementing a Resilience Plan and Resilience Program. This involves an in-depth assessment of Town needs to adequately implement a Resilience Plan and Program based on available Town resources and adjacent community Resilience Plans and Programs. Kimley-Horn will also develop an outline and recommended actions for implementing the Town's Resilience Plan and Program through future Community Flood Preparedness Fund (CFPF) cycles. The scope of work for this analysis is provided below.

## **SCOPE OF SERVICES**

Kimley-Horn is pleased to submit the following task order proposal for a Resilience Resource Assessment in the Town of Herndon (Town). This work will be contracted to Kimley Horn under Contract D-22-02 and will be billed on a lump sum basis. Kimley- Horn proposes the following scope of services:

### **Task 100: Project Management**

- A. Kickoff Meeting – Kimley-Horn will conduct a project kick off meeting with the Client to review the following items:
  1. Scope of Work
  2. Schedule
  3. Budget

Kimley-Horn will take meeting minutes and provide the kickoff meeting minutes to the Client.

- B. Progress Reports – Kimley-Horn will prepare progress reports for the Client to go along with our monthly billing. The progress reports will consist of the following information:
  1. Task Order Summary
  2. Schedule Review
  3. Budget Review
  4. Miscellaneous Coordination Needs

Kimley-Horn has assumed 1.5 hours of time for progress report preparation, QA/QC and revisions for a period of up to 12 months.

- C. Invoicing – Kimley-Horn has assumed 1.5 hours for invoice preparation, billing backup preparation, invoice QA/QC, and necessary invoice revisions for a period of up to 12 months.

#### **Task 200: Town Due Diligence**

In order to develop an identify Town Resilience needs and eventually develop an implementable Resilience program in the Town, Kimley-Horn will perform an assessment of the current Town resources to include, but not be limited to, staffing, infrastructure, operations, and funding need to be assessed. This assessment may consist of interviews with Town staff, review of Town documentation, field visits, Council meetings, etc. This assessment will consist of a review of the following items:

- A. Town Floodplain Ordinance / Regulatory Review
- B. Staff Review
- C. Storm Sewer Infrastructure
- D. Recurrent & Repetitive Flood Data Review
- E. Town Operations
- F. Stormwater Fund / General Fund Review

Upon completing this assessment, Kimley-Horn will prepare a memorandum with the findings and deliver to the Town for review. Kimley-Horn will conduct one (1) follow up meeting with the Town to discuss the findings identified in this memorandum.

#### **Task 300: Local Resilience Program Review**

The Town of Herndon is uniquely located within Fairfax County and adjacent to Loudoun County. These jurisdictions already have approved Resilience Plans and an evolving Resilience Program. Kimley-Horn will review publicly available, Fairfax County and Loudoun County Resilience Plans and Resilience Programs to identify unique program components for each jurisdiction that may benefit the Town but scaled down to fit the needs of the Town and within the Town's budgetary constraints.

Kimley-Horn will also review publicly available, approved Resilience Plans and Resilience Programs, for up to two (2) Virginia communities of like size, resources, infrastructure and general make-up of the Town of Herndon. The purpose for this review is to identify Resilience Plans and Resilience Program components that are implementable at the Town's scale and budget. Kimley-Horn will review the following items for each of these jurisdictions:

- A. Resilience Plan
- B. Floodplain Ordinance / Regulatory Review
- C. Resilience Staff
- D. Storm Sewer Infrastructure

- E. Recurrent & Repetitive Flood Data Review
- F. Stormwater Fund / General Fund Review

Kimley-Horn will prepare a matrix containing information for each of the reviewed jurisdiction. This matrix will be included within a memorandum summarizing the Resilience Plans and Resilience Program Components for each jurisdiction. Upon completing this assessment, Kimley-Horn will deliver the memorandum and matrix to the Town for review. Kimley-Horn will conduct one (1) follow up meeting with the Town to the Resilience Plan and Resilience Program components from other jurisdictions that may be implementable in the Town.

### **Task 400: – Resilience Program Recommendations**

Using the findings from the Town Due Diligence (Task 200) and the Local Resilience Program Review, Kimley-Horn will prepare an outline for developing a Town Resilience Program. The outline will consist of recommended Town action items along with the cost and schedule for implementing these action items. The schedule will be derived to best align with anticipated future CFPF Grant funding cycles and the Town budget. The outline may consist of the following items:

- A. Capacity Building
  - Floodplain Staff Capacity / Staff Training
  - Resilience Plan Development
    - Public Engagement
    - Agency Coordination
    - Hazard Assessment
    - Vulnerability Assessment
    - Goals / Objectives
    - Community Resilience Implementation Opportunities
    - Study / Project Prioritization Matrix
- B. Studies
  - Storm Sewer Data Collection
  - Hydrologic & Hydraulic Studies (Based on identified Hazard / Vulnerability Assessments from Resilience Plan)
  - Ordinance / Regulatory Modifications
- C. Projects (Based on Resilience Project Identification and Study Completion)

Kimley-Horn will provide the outline to the Town for review and comment and conduct one (1) follow up meeting with the Town to discuss the implementable action items.

### **Task 500: Meetings & Coordination**

Miscellaneous Client Coordination – Kimley-Horn will provide a two-person team for the following meetings:

- A. Town Due Diligence Meeting (Task 200)

- B. Local Resilience Program Review Meeting (Task 300)
- C. Resilience Program Recommendations (Task 400)
- D. Progress Meetings (Assume 12 months)

Kimley-Horn will prepare meeting minutes for each of the meetings listed above and provide to the Client. Should additional meetings and coordination be needed, Kimley-Horn will prepare an additional scope of work and cost estimate for these services.

### **Schedule**

Upon being issued a task order, Kimley-Horn will work with the Town to develop a mutually beneficial schedule.

### **Fee**

Kimley-Horn will perform the services as specifically requested by the Town under this Scope of Services on a lump sum basis not to exceed \$88,653.65. Kimley-Horn will prepare an Amendment consisting of a labor estimate and scope of work for any tasks or items outside of this scope of work. Kimley-Horn will utilize the rate schedule as provided for in Town contract D-22-02 (Attachment 1).

### **Assumptions**

For the purposes of developing this proposed scope of work and the accompanying cost estimate, we have made the following assumption:

- The Town will provide all known digital data, including CAD, PDFs, models from the previous or adjacent projects in a timely manner.
- Kimley-Horn assumes all information provided by the Town can be relied upon as accurate and utilized to supplement Kimley-Horn's execution of this scope of work.
- 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.

### **Exclusions**

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

- All Design Services
- All Permitting Services
- All Construction Services
- All other services not explicitly stated in this scope of work

We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

**Attachment 1**

RFQ 338784-C  
Engineering Services for the Loudoun County Stormwater Management Program

TASK		TASK DESCRIPTION														CFPF Resource Assessment 1/13/2025		Total Fee (Labor Total + Mileage Cost + KH Expenses + Sub Expenses + Sub Markup)						
				Principal	Project Manager	Senior Engineer	Project Engineer	Junior Engineer	Senior Planner / LA	Project Planner / LA	Planner / LA	Senior Environmental Scientist	Project Environmental Scientist	Environmental Scientist	Administrative			Total Hours	Labor Total	Total Miles For Each Task	Mileage Cost (Current Federal Rate)	KH Expenses	Sub Expenses	Sub Markup
				\$280.00	\$235.00	\$185.00	\$140.00	\$115.00	\$185.00	\$140.00	\$115.00	\$170.00	\$130.00	\$110.00	\$100.00					\$0.67			10%	
<b>Project Management</b>																								
100	Kickoff Meeting		2	2													4	\$ 840.00	\$ -				\$ 840.00	
	Progress Reports		6	12													18	\$ 3,630.00	\$ -				\$ 3,630.00	
	Invoicing		6														12	\$ 2,610.00	\$ -				\$ 2,610.00	
																	0	\$ -	\$ -				\$ -	
																	0	\$ -	\$ -				\$ -	
																	0	\$ -	\$ -				\$ -	
																	0	\$ -	\$ -				\$ -	
																	0	\$ -	\$ -				\$ -	
																	0	\$ -	\$ -				\$ -	
																	0	\$ -	\$ -				\$ -	
	<b>Subtotal</b>		0	14	14	0	0	0	0	0	0	0	0	0	0	12	0	0	40	\$ 7,080.00	0	\$ -	\$ -	\$ 7,080.00
<b>Town Due Diligence</b>																								
200	a. Town Floodplain Ordinance / Regulatory Review		1	4													5	\$ 975.00	\$ -				\$ 975.00	
	b. Staff Review		1	4													5	\$ 975.00	\$ -				\$ 975.00	
	c. Storm Sewer Infrastructure Review		1	4	16												21	\$ 3,215.00	\$ -				\$ 3,215.00	
	d. Recurrent Flood & Repetitive Loss Review		1	4	16												21	\$ 3,215.00	\$ -				\$ 3,215.00	
	e. Town Operations		1	4	16												21	\$ 3,215.00	50	\$ 33.50			\$ 3,248.50	
	f. Funding Review		1	4													5	\$ 975.00	\$ -				\$ 975.00	
	g. Memorandum Prep		8	24	40												72	\$ 11,920.00	\$ -				\$ 11,920.00	
	h.																0	\$ -	\$ -				\$ -	
	i.																0	\$ -	\$ -				\$ -	
	j.																0	\$ -	\$ -				\$ -	
	<b>Subtotal</b>		0	14	48	88	0	0	0	0	0	0	0	0	0	0	150	\$ 24,490.00	50	\$ 33.50	\$ -	\$ -	\$ 24,523.50	
<b>Local Resilience Program Review</b>																								
300	a. Resilience Plan Review		1	8	40												1	50	\$ 7,315.00	\$ -			\$ 7,315.00	
	b. Floodplain Ordinance / Regulatory Review		1	2	8	5											0.5	16.5	\$ 2,300.00	\$ -			\$ 2,300.00	
	c. Staff Review		1	2	8												11	\$ 1,725.00	\$ -				\$ 1,725.00	
	d. Storm Sewer Infrastructure Review		1	2	8												11	\$ 1,725.00	\$ -				\$ 1,725.00	
	e. Recurrent Flood & Repetitive Loss Review		1	2	8												11	\$ 1,725.00	\$ -				\$ 1,725.00	
	f. Funding Review		1	2	8												11	\$ 1,725.00	\$ -				\$ 1,725.00	
	g. Memorandum Prep		8	24	40												72	\$ 11,920.00	\$ -				\$ 11,920.00	
	h.																0	\$ -	\$ -				\$ -	
	i.																0	\$ -	\$ -				\$ -	
	j.																0	\$ -	\$ -				\$ -	
	<b>Subtotal</b>		0	14	42	120	5	0	0	0	0	0	0	0	0	0	1.5	182.5	\$ 28,435.00	0	\$ -	\$ -	\$ 28,435.00	

\*Year 1 rates per executed contract amendment #1 dated 12/1/2022.

RFQ 338784-C  
Engineering Services for the Loudoun County Stormwater Management Program

TASK	TASK DESCRIPTION	Principal	Project Manager	Senior Engineer	Project Engineer	Junior Engineer	Senior Planner / LA	Project Planner / LA	Planner / LA	Senior Environmental Scientist	Project Environmental Scientist	Environmental Scientist	Administrative			Total Hours	Labor Total	Total Miles For Each Task	Mileage Cost (Current Federal Rate)	KH Expenses	Sub Expenses	Sub Markup	Total Fee (Labor Total + Mileage Cost + KH Expenses + Sub Expenses + Sub Markup)			
		\$280.00	\$235.00	\$185.00	\$140.00	\$115.00	\$185.00	\$140.00	\$115.00	\$170.00	\$130.00	\$110.00	\$100.00					\$0.67			10%					
<b>Resilience Program Recommendations</b>																										
400	a. Resilience Plan Outline	1	6	12												19	\$ 3,025.00		\$ -					\$ 3,025.00		
	b. Studies Outline	1	6	12												19	\$ 3,025.00		\$ -					\$ 3,025.00		
	c. Projects Outline	1	6	12												19	\$ 3,025.00		\$ -					\$ 3,025.00		
	d. Outline Preparation	8	24	40												72	\$ 11,920.00		\$ -					\$ 11,920.00		
	d.															0	\$ -		\$ -					\$ -		
	e.															0	\$ -		\$ -					\$ -		
	f.															0	\$ -		\$ -					\$ -		
	g.															0	\$ -		\$ -					\$ -		
	h.															0	\$ -		\$ -					\$ -		
	i.															0	\$ -		\$ -					\$ -		
	j.															0	\$ -		\$ -					\$ -		
<b>Subtotal</b>		0	11	42	76	0	0	0	0	0	0	0	0	0	0	129	\$ 20,995.00	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,995.00		
<b>Meetings &amp; Coordination</b>																										
500	a. Town Due Diligence Meeting	4		4												8	\$ 1,500.00	15	\$ 10.05					\$ 1,510.05		
	b. Local Resilience Program Meeting	4		4												8	\$ 1,500.00	15	\$ 10.05					\$ 1,510.05		
	c. Resilience Program Recommendations	4		4												8	\$ 1,500.00	15	\$ 10.05					\$ 1,510.05		
	d. Progress Meetings	6		12												18	\$ 3,090.00		\$ -					\$ 3,090.00		
	d.															0	\$ -		\$ -					\$ -		
	e.															0	\$ -		\$ -					\$ -		
	f.															0	\$ -		\$ -					\$ -		
	g.															0	\$ -		\$ -					\$ -		
	h.															0	\$ -		\$ -					\$ -		
	i.															0	\$ -		\$ -					\$ -		
<b>Subtotal</b>		0	18	0	24	0	0	0	0	0	0	0	0	0	0	42	\$ 7,590.00	45	\$ 30.15	\$ -	\$ -	\$ -	\$ -	\$ 7,620.15		
<b>Total</b>		0	71	146	308	5	0	0	0	0	0	0	0	0	0	12	0	2	544	\$ 88,590.00	95	\$ 63.65	\$ -	\$ -	\$ -	\$ 88,653.65
Hour Percentage																										

\*Year 1 rates per executed contract amendment #1 dated 12/1/2022.

## Attachment 3

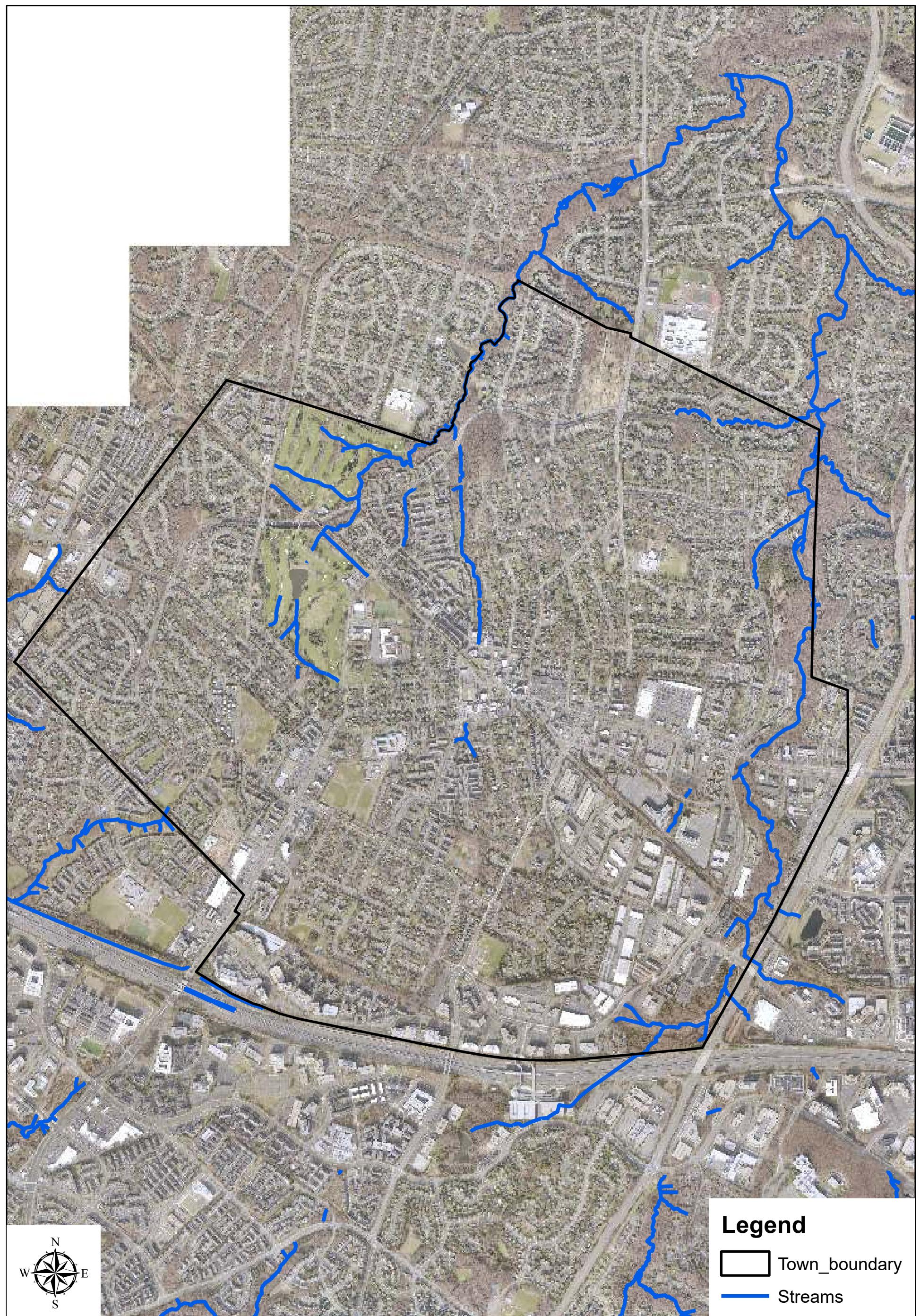
### CFPF Grant Narratives Supporting Documents

#### Attachment 3 – Outline

1. Detailed Map of Project Area
2. FIRM of the Project Area
3. Town of Herndon - Current Floodplain Ordinance
4. Town of Herndon – Comprehensive Plan
5. Town of Herndon – Social Vulnerability Map & Index Score
6. Authorization to request funding from the Fund and/or RVRF  
Match loan from governing body or chief executive of the local government
7. Signed pledge agreement from each contributing organization
8. Stormwater Fund Documentation



**Attachment 3.1**  
**Detailed Map of Project Area**



# Town of Herndon Resilience Resource Assessment



## Attachment 3.2

### FIRM Map of Project Area



## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The [community map repository](#) should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study report for this jurisdiction. Flood elevations may be available on the FIRM represent rounded whole-foot elevation. These figures are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevation (BFEs)** shown on this map apply only landward of O.O. National Geodetic Vertical Datum (1929). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with respect to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Transverse Mercator (UTM) zone 18. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov) or contact the National Geodetic Survey at the following address:

Special Reference System Division  
National Geodetic Survey, NOAA  
Silver Spring Metro Center  
1315 East-West Highway  
Silver Spring, Maryland 20910  
(301) 713-3242

To obtain current elevation, description, and/or location information for **benchmarks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit their website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov).

**Base map** information shown on this FIRM was provided in digital format by the County of Fairfax GIS Department, including hydrography and political boundaries. These files were compiled at a scale of 1:2400 based on the available 2000 DOQQ aerial photography. Additional information may have been derived from other sources.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

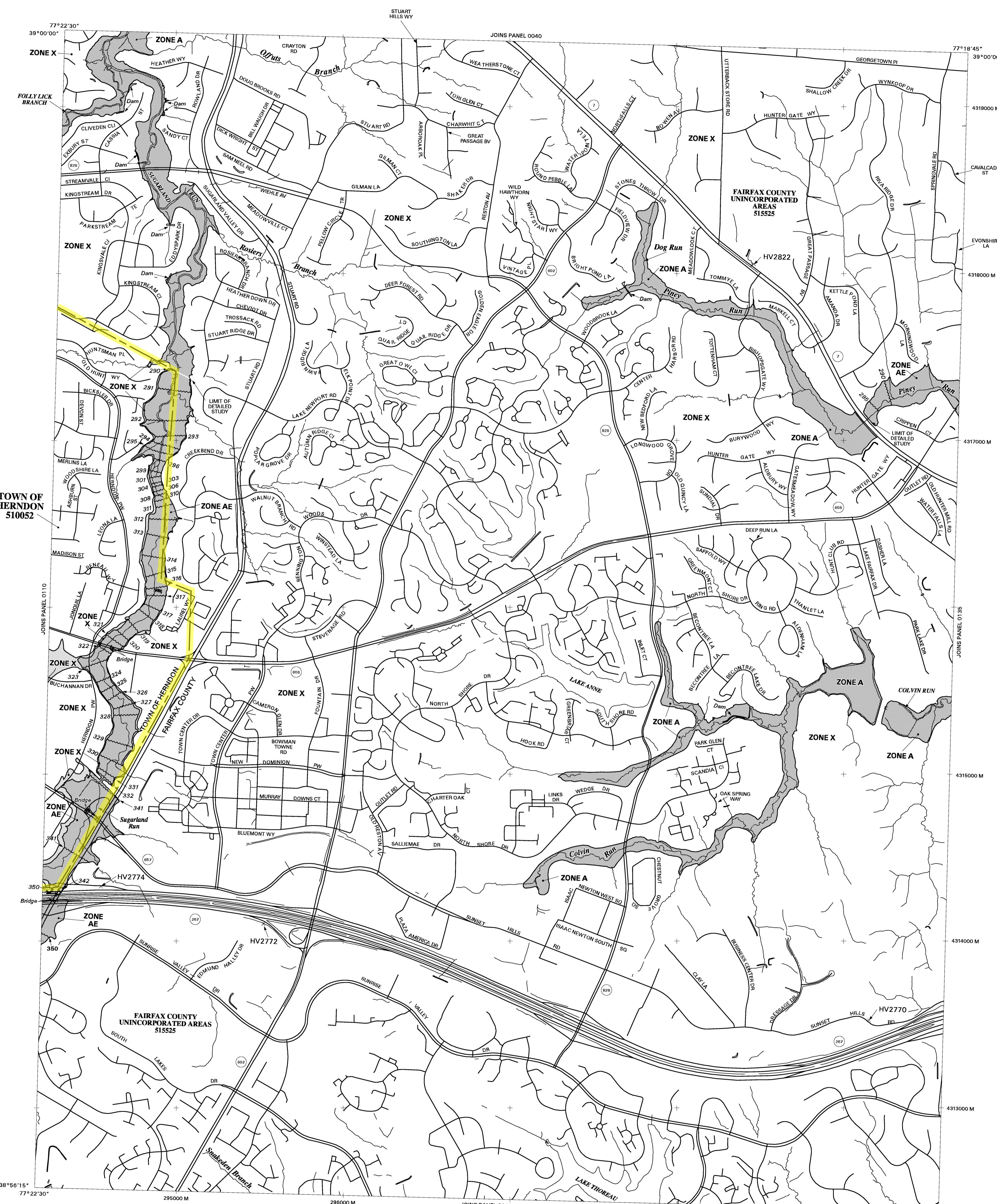
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a listing of communities table containing National Flood Insurance Program data for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for information on all related products available from FEMA:

Phone: 800-358-9616  
FAX: 800-358-9620  
<http://msc.fema.gov>

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/fip/>

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.



## LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of flood hazard include AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

No base flood elevations determined.

Base flood elevations determined.

Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

### FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

### OTHER FLOOD AREAS

Area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

### OTHER AREAS

Areas determined to be outside the 0.2% annual chance floodplain.

### ZONE X

Areas in which flood hazards are undetermined, but possible.

### COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary

Floodway boundary

Zone boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.

Base Flood Elevation line and value; elevation in feet\*

(EL. 987)

Base Flood Elevation value where uniform within zone; elevation in feet\*

\*Referenced to the National Geodetic Vertical Datum of 1929

Cross Section Line

Transect Line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

97°07'30", 32°22'30"

4300000 M

DX5510 X

M1.5

River Mile

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

SEPTEMBER 17, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

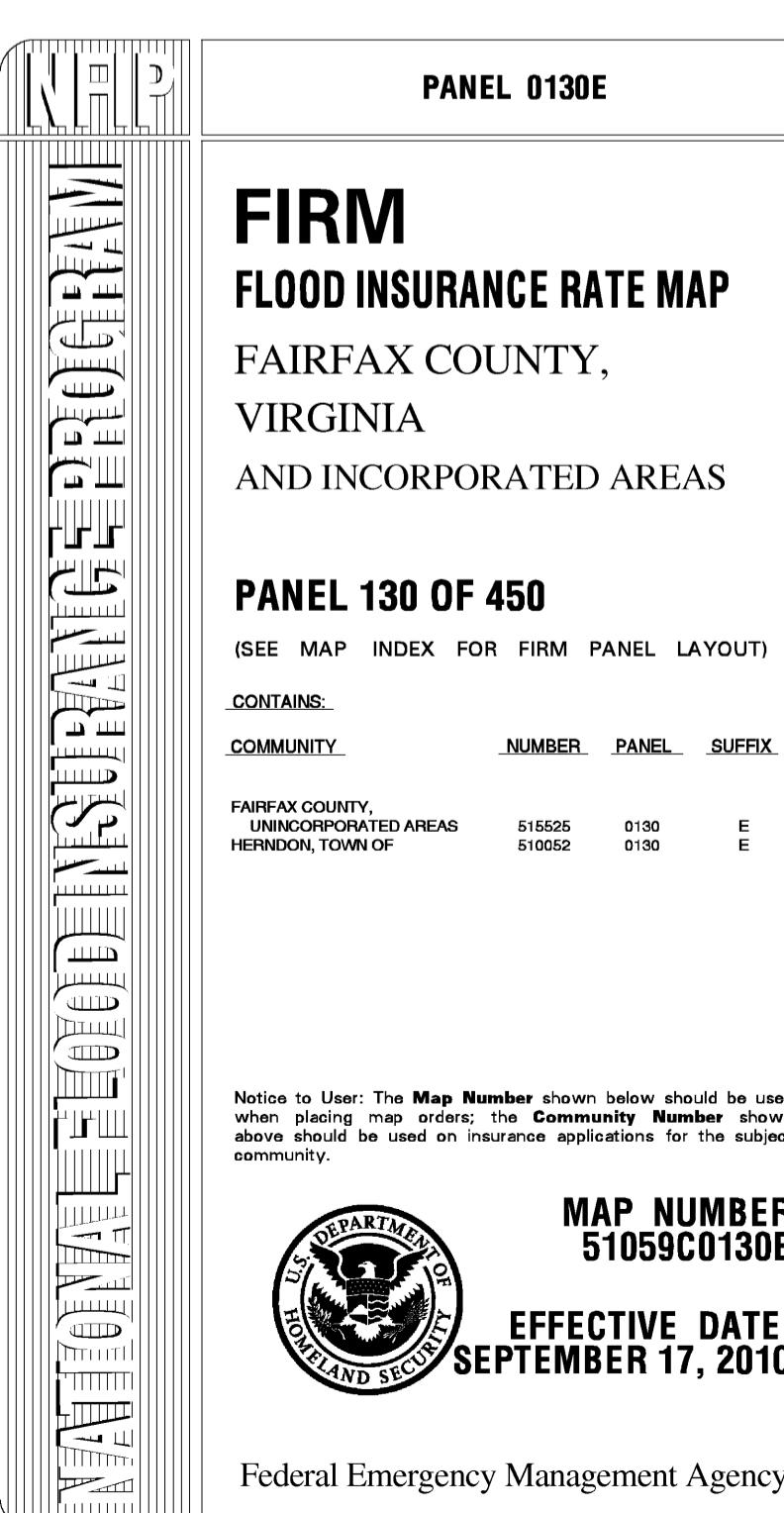
For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 1000'

500 0 1000 FEET

300 0 300 600 METERS





### Attachment 3.3

#### Town of Herndon – Floodplain Ordinance

**Sec. 78-60.2. - Floodplain Overlay (FPO).**

- (a) *Purpose and intent.* This section is adopted pursuant to the authority granted to localities by Virginia Code § 15.2-2280. The town welcomes the dedication of floodplain to the town wherever possible for preservation of the floodplain and its use as green space. The floodplain overlay district (FPO) is intended to:
- (1) Provide for safety from flood and other dangers;
  - (2) Protect against loss of life, health, or property from flood or other dangers;
  - (3) Prevent disruption of commerce and government services, the unnecessary expenditure of public funds for flood protection and relief;
  - (4) Preserve and protect floodplains in as natural a state as possible for the preservation of wildlife habitats, for the maintenance of the natural integrity and function of the streams, for the protection of water quality, and for the promotion of a zone for ground water recharge; and
  - (5) Prevent the impairment of the tax base by:
    - a. Regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies;
    - b. Restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;
    - c. Requiring all those uses, activities, and developments that do occur in flood-prone districts to be protected and/or flood-proofed against flooding and flood damage; and
    - d. Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.
- (b) *Applicability.* The provisions of this section shall apply to all lands within the town identified as flood-prone, as follows:
- (1) *Flood-prone land.* Flood-prone land shall not be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered on flood-prone land except in full compliance with the terms and provisions of this section and all other relevant chapters and regulations which apply to the development of the land, such as the Virginia Uniform Statewide Building Code, the town subdivision regulations, and applicable state and federal laws. Records of actions associated with administering this section shall be kept on file and maintained by the zoning administrator or designee.
  - (2) *100-year flood.* The FPO shall include all lands subject to inundation by waters of the 100-year flood. The basis for the delineation of the FPO shall be the flood insurance study for the town prepared by the U.S. Department of Housing and Urban Development, Federal Insurance

Administration, dated February 1979, as may be amended subsequently. The basis for the outermost boundary of the FPO shall be the 100-year flood elevations contained in the flood profiles of the flood insurance study as shown as zone A1—A30 on the accompanying flood insurance rate map, dated April 1, 1979, as amended. Areas designated as either zone A1—A30 or AE shall be that floodplain area for which base flood elevations have been provided in the FIS and FIRM but for which no floodway has been delineated. The delineation of any FPO lands may be revised by the town council where natural or manmade changes have occurred or more detailed studies are conducted or undertaken by the U.S. Army Corps of Engineers, another qualified public agency, or qualified individual professionals demonstrating the advisability of such change. Prior to town council's approval of such a change, approval shall be obtained from the Federal Insurance Administration.

- (3) *Validity.* If any provision of the FPO is declared inapplicable as a result of any legislative or administrative action or judicial discretion, base underlying floodplain overlay district provisions shall remain applicable.
- (c) *Definitions.* See Article XVIII, Definitions, for explanations of words, terms and phrases used in this section.
- (d) *Overlay concept.* The floodplain districts described above shall be overlay to the existing underlying zoning districts as shown on the official zoning ordinance map, and as such, the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions. If there is any conflict between the provisions or requirements of the floodplain district and those of any underlying zoning district, the more restrictive provisions and/or those pertaining to the floodplain district shall apply. In the event any provision concerning a floodplain district is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying zoning provisions shall remain applicable.
- (e) *District boundaries and delineation.* The various floodplain districts shall include special flood hazard areas. The basis for the delineation of these districts shall be the flood insurance study (FIS) and the flood insurance rate maps (FIRM) for Fairfax County and the Town of Herndon prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated September 17, 2010, and any subsequent revisions or amendments thereto, and as described below:
  - (1) *Special floodplain area district (AE zone).* The special floodplain area district shall be those areas identified as an AE zone on the maps accompanying the flood insurance study for which 100-year flood elevations have been provided.
  - (2) *Approximated floodplain district (A zone).* The approximated floodplain district shall be those areas identified as an A zone on the maps accompanying the flood insurance study. In these zones, no detailed flood profiles or elevations are provided, but the 100-year floodplain boundary has been approximated.

- (3) *Shallow flooding district (AO or AH zone).* The shallow flooding district shall be those areas identified as zone AO or AH on the maps accompanying the flood insurance study.
- (f) *Official map.* The boundaries of the special flood hazard and floodplain districts are established as on the flood boundary and floodway map and/or flood insurance rate map which is declared to be a part of this section and which shall be kept on file at the town offices.
- (g) *Administration.* The provisions of this section shall be administered as follows:
- (1) *District boundary modifications.* The delineation of any of the floodplain districts may be revised by the town where natural or man-made changes have occurred and/or where detailed studies have been conducted or undertaken by the U.S. Army Corps of Engineers or other qualified agency, or an individual documents the need for modification. However, prior to any such modification, approval must be obtained from the Federal Insurance Administration.
  - (2) *Interpretation of the floodplain districts.* Interpretations of the boundaries of the floodplain district shall be made by the zoning administrator. Any individual or group disputing a floodplain district boundary interpretation shall have the right to appeal such interpretation to the board of zoning appeals.
  - (3) *Submission of technical data.* A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, the town shall notify the Federal Insurance Administrator of the changes by submitting technical or scientific data. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and flood plain management requirements will be based upon current data.
  - (4) *Permit requirement.* All uses, activities, and development occurring within any floodplain district shall be undertaken only upon the issuance of a building permit subject to the following provisions.
    - a. Such development shall be undertaken only in strict compliance with the provisions of this section and with all other applicable codes and ordinances, as amended, such as the Virginia Uniform Statewide Building Code (VA USBC) and the town's subdivision regulations.
    - b. Prior to the issuance of any such permit, the zoning administrator shall require all applications to include compliance with all applicable state and federal laws and shall review all sites to assure they are reasonably safe from flooding.
    - c. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways of any watercourse, drainage ditch, or any other drainage facility or system.

- (5) *Site plan and permit applications.* All site plan applications for development within the FPO any floodplain district and all building permits issued for the floodplain shall include the following:
- a. An elevation of the base flood at the site;
  - b. An elevation of the lowest floor, including the basement;
  - c. Nonresidential only structures to be flood-proofed shall include the elevation to which the structure will be flood-proofed; and
  - d. Topographic information showing existing and proposed ground elevations.
- (h) *District standard regulations.* Development in the district shall meet the following standards:
- (1) *Building requirements.* New construction and substantial improvements shall be according to the VA USBC, and anchored to prevent flotation, collapse or lateral movement of the structure.
  - (2) *Manufactured homes.* Manufactured homes shall be prohibited in accordance with the regulations of this chapter.
  - (3) *Materials.* New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
  - (4) *Minimize flood damage.* New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.
  - (5) *Utilities.* Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities, including duct work, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
  - (6) *Water supply.* New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
  - (7) *Sanitary sewage systems.* New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
  - (8) *On-site waste disposal.* On-site waste disposal systems, if permitted, shall be located and constructed to avoid impairment to them or contamination from them during flooding.
  - (9) *Alterations, improvements, repairs and reconstruction.* Any alteration, repair, reconstruction or improvements to a building that is in compliance with the provisions of this chapter shall meet the requirements of "new construction" as contained in this chapter. Any alteration, repair, reconstruction or improvements to a building that is not in compliance with the provisions of this section, shall be undertaken only if the nonconformity is not furthered, extended, or replaced.
- (10)

*Additional regulations for special flood hazard areas.* In addition to the above regulations, the following shall apply to all special flood hazard areas:

- a. Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within this jurisdiction a permit shall be obtained from the U.S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and the Federal Insurance Administrator.
- b. The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

(i) *District specific regulations.* Development in the district shall meet the following specific standards:

- (1) *Site plan and special exception requirement.* Uses, activities, and development occurring within the FPO shall be undertaken only upon the issuance of approval of a site plan and special exception pursuant to this section, other than restoration or replacement of single-family detached dwellings after casualty damage.
- (2) *Uses.* Those uses that are allowed by right in the underlying zoning district are allowed upon the approval of a special exception pursuant to section 78-155.3, special exception, and section 78-155.3(e)(2), special review standards for the Floodplain Overlay District. Any special exceptions that are issued shall be noted in the annual report submitted to the federal insurance administrator.
- (3) *Notification requirements.* In addition to the notification requirements described in Article XV, further notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Virginia Department of Conservation and Recreation (Floodplain Management Program) and the Federal Insurance Administration.
- (4) *No change in carrying capacity/volume/velocity.* Under no circumstances shall any use, activity or development decrease the carrying capacity of, or increase the volume or velocity of inflow to, the channels of floodways of any watercourse, drainage ditch or any other drainage facility or system.
- (5) *No increase in elevation of 100-year flood.* No new construction, or development shall be permitted within the floodplain overlay district unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, does not increase the elevation of the 100-year flood at any one point.
- (6)

*Alteration and relocation channels/watercourse.* Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within the town, a permit from the U.S. Army Corps of Engineers and certification from the Virginia State Water Control Board may be necessary. A joint permit application is available from one of these organizations. Further notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Floodplain Management Program) and the Federal Insurance Administration.

- (7) *Submission requirements.* All applications for development in the floodplain overlay district issued for the floodplain shall comply with the submittal requirements described in section 78-155.3.
- (8) *New construction.* The proposed building site must be reasonably safe from flooding. If a proposed building site is in a flood-prone area, all new construction and substantial improvements shall meet the following standards:
  - a. Be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy,
  - b. Be constructed with materials resistant to flood damage,
  - c. Be constructed by methods and practices that minimize flood damages, and
  - d. Be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- (9) *Construction standards for enclosed areas below flood elevation.* New construction and substantial improvements with fully enclosed areas below the regulatory flood protection level that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be constructed entirely of flood resistant materials below the regulatory flood protection elevation and designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:
  - a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
  - b. The total net area of all openings must be at least one square inch for each square foot of enclosed area subject to flooding.
  - c. If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.

- d. The bottom of all openings shall be no higher than one foot above grade.
  - e. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
  - f. Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.
- (10) *Elevation standards for residential structures.* New construction and substantial improvements of residential structures within zones A1—30, AE and AH zones on the flood insurance rate map shall have the lowest floor (including basement) elevated no lower than 18 inches above the base flood level.
- (11) *Elevation standards and floodproofing standards for nonresidential structures.* New construction and substantial improvements of nonresidential structures within zones A1—30, AE and AH zones on the flood insurance rate map shall have the lowest floor (including basement) elevated no lower than 18 inches above the base flood level or, together with attendant utility and sanitary facilities, be designed so that below the base flood level plus one foot the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are floodproofed, shall be maintained by the zoning administrator.
- (12) *Design criteria for utilities and facilities.* The following criteria shall apply in the district:
- a. *Utilities.* All utilities and facilities, such as sewer, gas, electrical, telecommunication, and water systems being placed in flood-prone areas should be located, elevated (where possible), and constructed to minimize or eliminate flood damages.
  - b. *Drainage facilities.* All drainage facilities shall be designed to convey the flow of stormwater runoff in a safe and efficient manner. The system shall ensure proper drainage along streets, and provide positive drainage away from buildings. The system shall also be designed to prevent the discharge of excess runoff onto adjacent properties. The town council may require a primarily underground system to accommodate frequent floods and a secondary surface system to accommodate larger, less-frequent floods. Drainage plans shall be consistent with local and regional drainage plans.
  - c. *Water facilities.* All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and be located and constructed to minimize or eliminate flood damage and impairment.

- d. *Sanitary facilities.* All new and replacement sanitary sewage systems, private package sewage treatment plants, and onsite wastewater treatment systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters. In addition, they should be located and constructed to minimize or eliminate flood damage and impairment.
- e. *Streets and sidewalks.* Streets and sidewalks should be designed to minimize their potential for increasing and aggravating the levels of flood flow. Drainage openings may be required to sufficiently discharge flood flows without unduly increasing flood heights.

- (13) *Modification, alterations, repairs and reconstruction of existing structures.* The following standards shall apply in the district:
- a. Existing structures in the floodplain area shall not be expanded or enlarged unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed expansion would not result in any increase in the base flood elevation.
  - b. In the floodplain overlay district, the modification, alteration, repair, reconstruction or improvement that amounts to less than 50 percent of its market value shall conform to the VA USBC.
  - c. The modification, alteration, repair, reconstruction, or improvement of any kind to a structure and/or use, regardless of its location in a floodplain area to an extent or amount of 50 percent or more of its market value shall be undertaken only in full compliance with this chapter and shall require the entire structure to conform to the VA USBC.
  - d. If the structure in the floodplain overlay district is designed and used as a single-family detached dwelling that is a permitted use in the zoning district pursuant to Table 78-70.2. D: Table of Principal Permitted and Allowed Uses, it may be restored in its location prior to casualty so long as:
    1. The restoration is begun within 12 months and completed within 24 months of the casualty;
    2. The modification, alteration, repair, reconstruction or improvement is elevated or flood proofed or both to the greatest extent possible;
    3. The structure occupies the same space it occupied prior to the casualty; and
    4. No dwelling units are added.

- (14) *Recreational vehicles.* Recreational vehicles may be placed on sites for fewer than 180 consecutive days and must be fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices.

(j)

*Special floodplain district regulations and map revisions.* Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as zones A and AE on the flood insurance rate map, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the town. Development activities in zones A, AE, and AH, on the town's flood insurance rate map which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the applicant first applies with the town's endorsement for a conditional flood insurance rate map revision, and receives the approval of the Federal Emergency Management Agency.

- (k) *Approximated floodplain regulations.* The approximated floodplain district shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a 100-year floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the flood insurance study. For these areas, the 100-year flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. It is recommended that the applicant refer to FEMA 265, "Managing Floodplain Development in Approximate Zone A Areas, A Guide for Obtaining and Developing Base (100-Year) Flood Elevations." Where the specific 100-year flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers Floodplain Information Reports, U.S. Geological Survey Flood-Prone Quadrangles, etc., an applicant for a proposed use, development and/or activity greater than 50 lots or five acres, whichever is lesser, shall determine this elevation in accordance with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the zoning administrator.
- (l) *Shallow flooding district regulations.* The following standards shall apply in shallow flooding districts.
- a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the flood insurance rate map, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two feet above the highest adjacent grade.
  - b. All new construction and substantial improvements of nonresidential structures shall:
    - 1.

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

2. Together with attendant utility and sanitary facilities be completely flood-proofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
- c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

(m) *Subdivision applications regulations.* All subdivision applications within the district shall:

- (1) *Minimize damage.* All subdivision proposals shall be consistent with the need to minimize flood damage;
- (2) *Utilities.* All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
- (3) *Drainage.* All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards; and
- (4) *Flood elevation.* Base flood elevation data shall be provided for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed 50 lots or five acres, whichever is the lesser.

(n) *Violations.* Violation of district regulations shall be addressed as follows:

- (1) *Penalty for violations.* Any person who fails to comply with any of the requirements or provisions of this section or directions of the zoning administrator or any authorized designee of the town pursuant to this section shall be guilty of a civil violation and subject to the penalties in accordance with section 78-170.4(a) of this chapter.
  - (2) *Correction of violations.* In addition to the above penalties, all other actions are hereby reserved, including an action in equity for the proper enforcement of this article. The imposition of a fine or penalty for any violation of, or noncompliance with, this article shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations or noncompliance within a reasonable time. Any structure constructed, reconstructed, enlarged, altered or relocated in noncompliance with this article may be declared by the town to be a public nuisance and abatable as such. Flood insurance may be withheld from structures constructed in violation of this article.
- (o) *Variances.* See section 78-155.4(d)(2), variances in the floodplain overlay district, for regulations governing variances in floodplains.

- (p) *Nonconformities.* See Article XVI, Nonconformities, for regulations governing nonconformities in floodplains.
- (q) *Municipal liability.*
  - (1) *Limitations.* The degree of flood protection sought by the provisions of this section 78-60.2, floodplain overlay district (FPO), is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study. Larger floods may occur. Flood heights may be increased by manmade or natural causes, such as ice jams and the restriction of bridge openings by debris. This section does not imply that areas outside the FPO, or that land uses permitted within those districts, will be free from flooding or flood damages.
  - (2) *Personal liability.* This section shall not create liability on the part of the town or any officer or employee of the town for any flood damages that result from reliance on this section or any administrative decision lawfully made under this section.
- (r) *Conflict with other regulations.* In cases where the requirements of this section conflict with any other provisions of the Herndon Town Code, or state code regulations, the restrictions of this section shall apply in flood-prone districts.
- (s) *Severability.* The subsections, paragraphs, sentences, clauses and phrases of this section are severable, and if any phrase, clause, sentence, paragraph or subsection of this section shall be declared unconstitutional or invalid by the valid judgment or decree of a court of competent jurisdiction, such unconstitutionality or invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs or subsections of this section. The remaining portions shall remain in full force and effect.

(Ord. No. 17-O-13, 8-8-2017; Ord. No. 20-O-61, § 1, 11-17-2020)



**Attachment 3.4**  
**Town of Herndon – Comprehensive Plan**



# Herndon 2050 Comprehensive Plan

## Process and Scope Introduction

**Planning Commission Work Session**  
**August 14, 2023**

# What is a Comprehensive Plan?

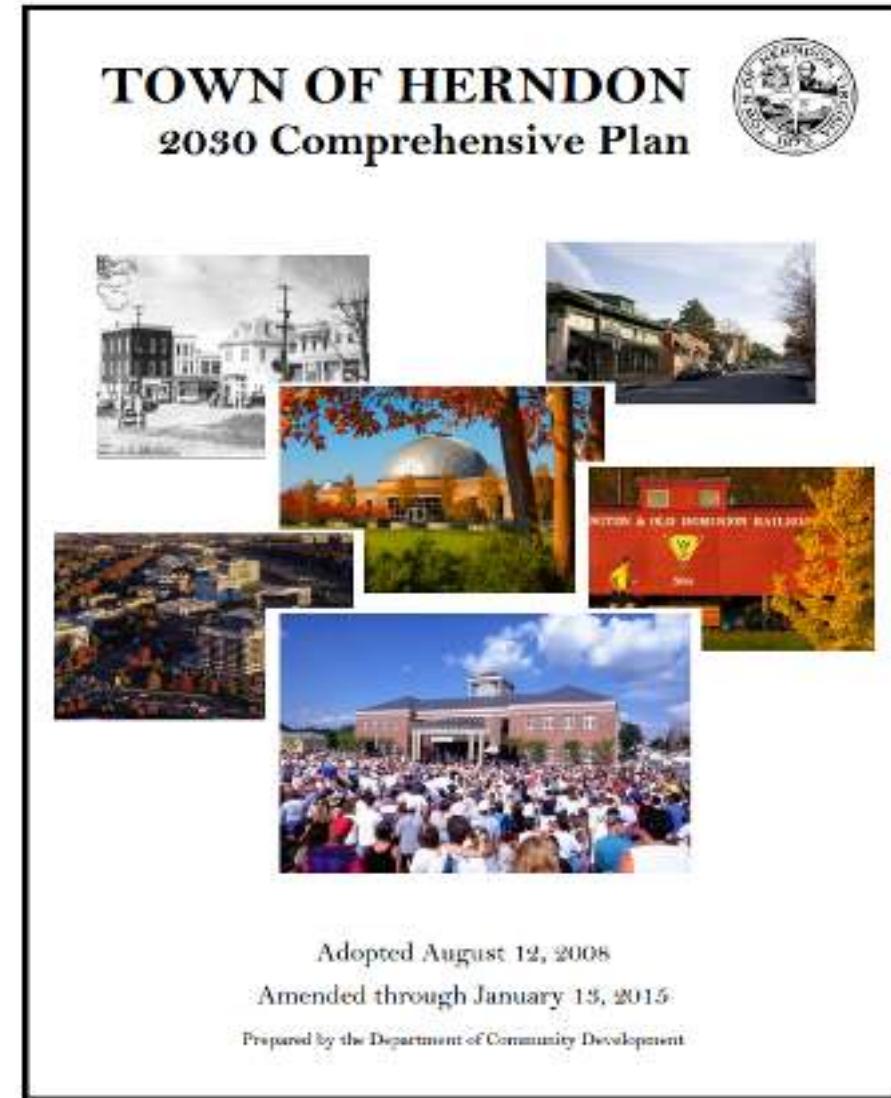
- An overarching policy and long-range landuse document establishing a vision, goals, and strategies to implement them.
- It Provides guidance on land use, transportation, housing, economic development, environment, public facilities, parks and recreation, and design and historic preservation.
- Lead document that guides decision-making, zoning, and budget decisions, (Capital Improvement Program -CIP)

# Comprehensive Plans are required by the Code of Virginia;

- “The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction. "Section 15.2-2223 of the code
- The plan is intended to be general in nature and identify “approximate” locations & characters of major features
- The comprehensive plan should be based on a comprehensive survey and studies of the existing conditions and trends of growth, as well as extensive and iterative public outreach.

# Town of Herndon 2030 Comprehensive Plan

- Adopted August 12, 2008;
- Nine significant amendments including three area plans since adoption.
- A lot has changed since 2008, including;
  - Demographics and Population
  - The opening of the Herndon Silver Line Metro Station
  - Post-Covid economics
  - Housings



# Need for a New Comprehensive Plan

- The Town needs to re-envision its future through a new **2050 Comprehensive Plan** that is based on the recent and emerging economic, environmental, infrastructural, and social realities and challenges.
- **The Herndon 2050 Comprehensive Plan will be the Town's leading policy and long-range landuse document.**

## Current Status;

- A consultant will be hired to help the town facilitate a public-driven planning process and draft the Herndon 2050
- A scope of services for a Request for Proposals (RFP) is currently being developed
- An RFP is anticipated to be posted in the early Fall of 2023.
- The plan development process is expected to take between two to three years to complete.

# **Anticipated Phases and Tasks:**

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**Phase I, Commencement**

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**Phase II, Exploration and analysis**

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**Phase III**

**Visioning and goals setting and Framework**

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**Phase IV, Plan Preparation**

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**Phase V, Plan finalization and adoption**

# Anticipated Plan Elements:

The scope of services outlines several key plan chapters and elements, including:

- ✓ Landuse Plan
- ✓ Housing
- ✓ Transportation element as required by the Code of Virginia
- ✓ **Economic Development**
- ✓ **Sustainability, environment, climate change, and resiliency**
- ✓ **Design Identity**
- ✓ Historic Preservation
- ✓ **Digital Master Plan and smart city elements, and**
- ✓ **Implementation strategy**

# Anticipated Chapter/Topics

1. Introduction,  
Purpose  
Foundation - Equity and  
Sustainability  
Incorporation of Smart Cities  
Town History  
Town's Profile
2. Land Use  
Housing (to include Affordable)  
Retail/Commerce  
Office  
Public and Institutional  
Makers Space/Light Industrial  
Mixed-Use  
Transit Development  
Small Area Plans  
Existing  
Future
3. Transportation  
New Transportation Plan  
Parity of Modes  
Safety for All  
Accommodating New  
Needs and Modes  
Equity  
Alternatives and  
Accessibility
4. Economic Development
5. Fiscal Sustainability
6. Design Identity  
Historic Preservation  
Design outside the HDO  
Public Spaces  
Public Art

# Anticipated Chapter/Topics

## 7. Environment and Environmental Sustainability

Urban Forestry  
Stormwater Master Plan  
Chesapeake Bay  
Preservation Act  
Built Environment  
Getting to Net Zero  
Community Energy Plan  
Recycling Program

## 8. Community Services

Parks and Recreation  
Police  
Emergency Management  
Utilities  
Sanitary Sewer  
Water

## 9. Implementation Plan

## 10. Market Study

## 11. Economic Development Strategy

# Grant Funding – DOT, RAISE

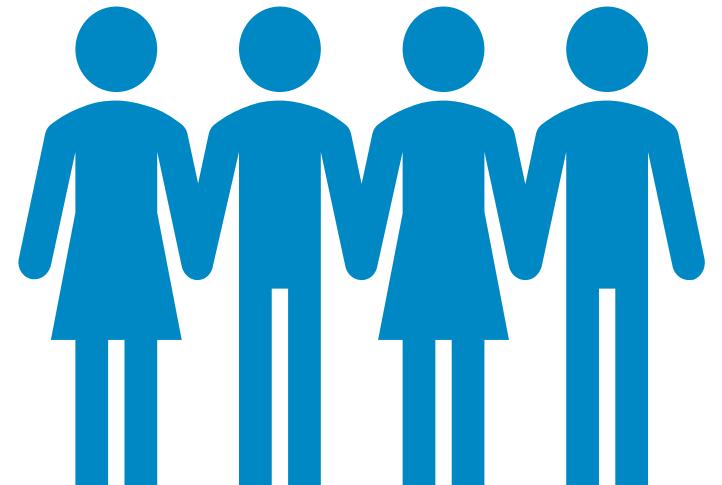
- The Herndon 2050 Planning Project is expected to cost \$900,000.
- The Town has received \$720,000 in funding from DOT/ RAISE Program
  - **Sustainability – Climate Change and Resiliency**
  - **Land use, transportation, reduced carbon emissions, and equity linkage**
  - **Safety and “Safe Systems”/“Vision Zero” in transportation, and**
  - **Equity (Historically Disadvantaged Community)**

# Whose plan is it? The residents and businesses of the Town

**The planning process must be Inclusive;**

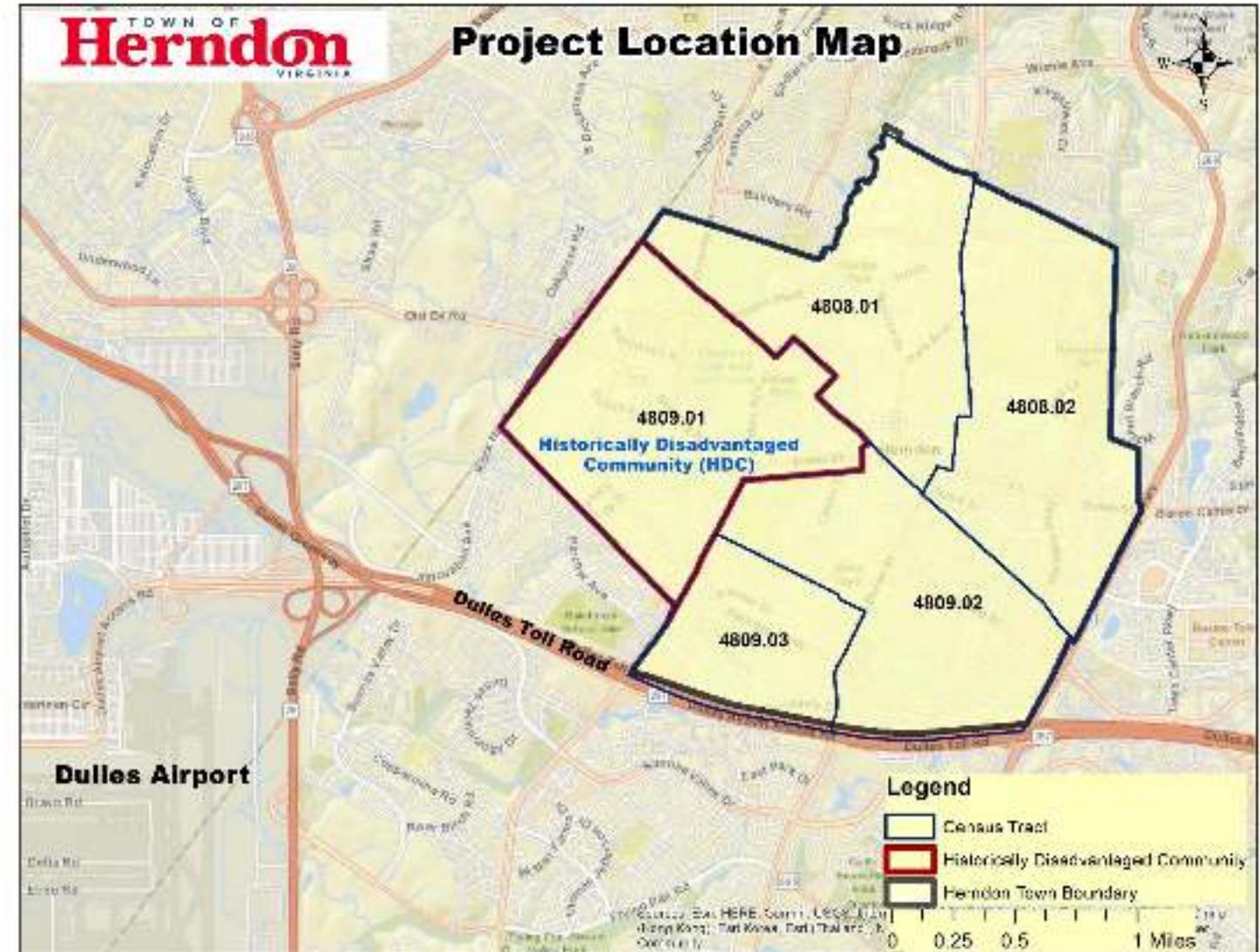
Meaningful outreach to all sectors and communities

- 56.7% of the Herndon Community speaks a Language other than English in their homes
- Historically Disadvantaged Community
- Equity and the need to listen and incorporate



# Historically Disadvantaged Community (HDC)

Census Tract 4809.01 is marked as a Historically Disadvantaged Community Tract by the Department of Transportation (DOT)



# Project Approach

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The Herndon 2050 will be jointly developed with the community and supervised by the town's Planning Commission and staff

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The project's consultant will work with the town staff to solicit community input in the preparation of the plan.

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Public engagement and consultation will be a continuous trend throughout the project execution and a major driver in the composition of the plan.

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# Expected Public Engagement Activities

- Herndon 2050 website to establish ongoing community engagement and input throughout the project
- Ongoing consultation with community, groups, and committees including:
  - A Herndon 2050 Committee; and
    - Economic Development Advisory Committee (EDAC)
    - The Herndon Bicycle and Pedestrian Advisory Committee (PBAC);
    - The Herndon Diversity, Equity, and Inclusion Committee (HDEIC);



# Early Considerations

- ✓ What should be the town's character and identity? How much or little can it or should it grow? Is there a comparative advantage that should be leveraged?
- ✓ How best to guide a sustainable, resilient, and prosperous future for all town residents, businesses, and visitors?
- ✓ How best to address challenges and uncertainties that the Town is dealing with now or expected to face within the coming 25 years?
- ✓ How best to support vitality and vibrancy in the town economy and align it with the changing dynamics of post covid market trends?
- ✓ How best to integrate a multi-modal approach to the transportation network?
- ✓ How should the 2050 comp plan contents be best communicated, what format will be the easiest to understand and implement?
- ✓ Need to satisfy the requirements of the Code of Virginia.

## Questions or Comments?



# Herndon 2050 Comprehensive Plan

**Project Scope**

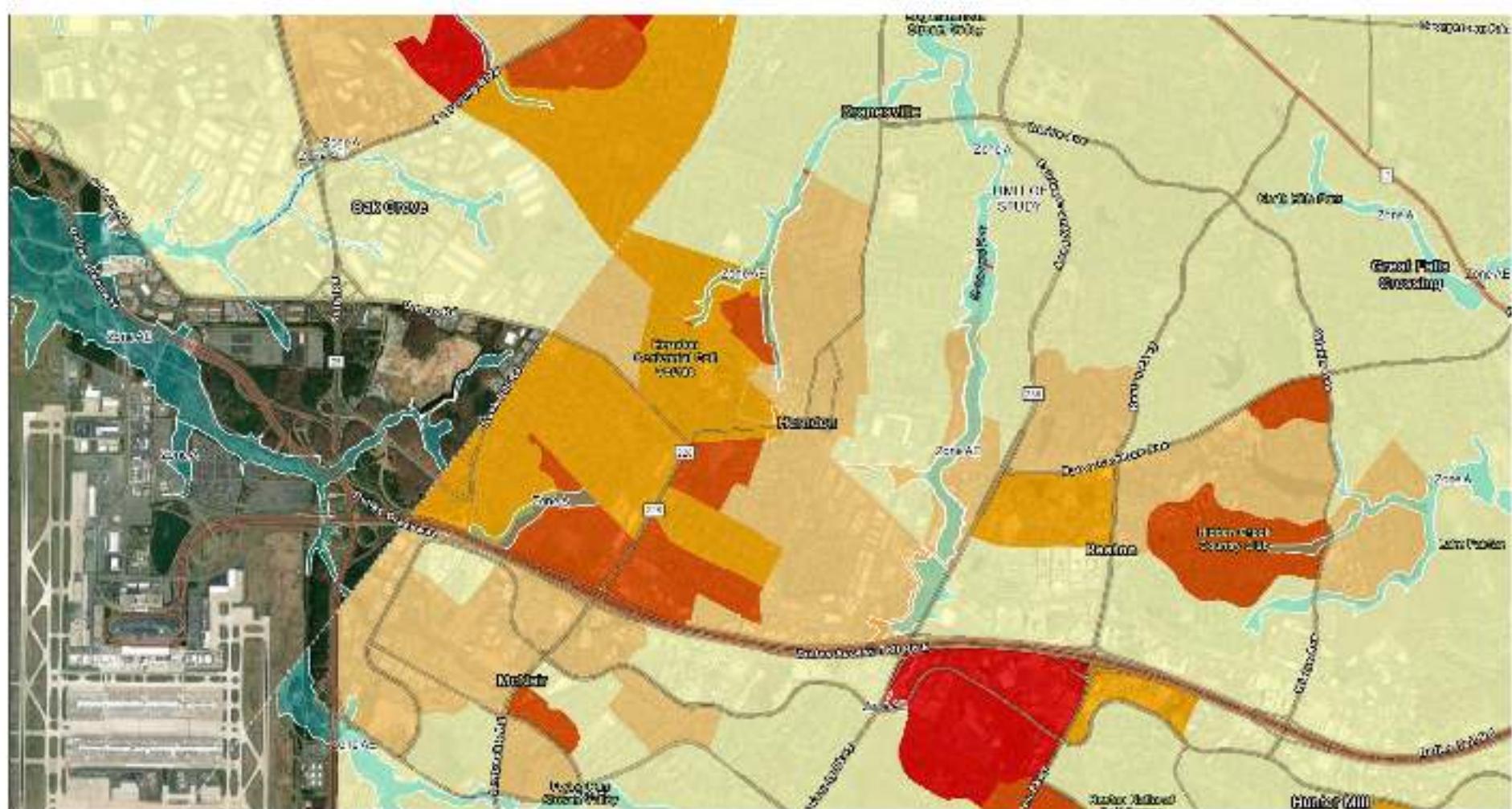
Planning Commission  
Work Session

August 14, 2023



**Attachment 3.5**  
**VFRIS Social Vulnerability Map & Index Score**

## VFRIS Exporter



1/7/25, 6:28:40 AM

1:40:377

0 0.4 0.8 1.2 1.6  
0 0.5 1 1.5 2 km

- Profile Baseline
- Flood Hazard Boundaries
- Limit Lines
- Other Boundary
- Flood Hazard Area
- 0.2% Annual Chance Flood Hazard

- 1% Annual Chance Flood Hazard
- Area of Minimal Flood Hazard
- Social Vulnerability Block Groups 2020
- Very Low Social Vulnerability
- Low Social Vulnerability
- Moderate Social Vulnerability
- High Social Vulnerability
- Very High Social Vulnerability

Credit of Location: Fairfax County, VA, TechNet  
NHC: Natl. Hur. Prof. Ctr., NOAA, National  
GeoTechnologies, Inc., VETV, USGS, EPA, NPS,  
USIA, USGS, NOAA



### Attachment 3.6

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

Authorization To Request Funding

Applicant Name & Address:      Town of Herndon  
Attention: Richard Smith, PE  
777 Lynn Street  
Herndon, Virginia 20170  
703-435-6800

Project Title:                        Town of Herndon Resilience Resource Assessment

Match Funding Source:              Stormwater Fund

Match Contribution Amount:        Town - \$8,865.36 (10%) / Grant - \$79,788.29 (90%)

"I certify that I am requesting matching grant funds from the Virginia Community Flood Preparedness Fund on behalf of the Town of Herndon in the Capacity Building/Planning category for the development of the Community Flood Prevention Fund – Town of Herndon Resilience Resource Assessment."

---



Signature

---

1/24/2025

Date



### Attachment 3.7

Signed pledge agreement from each contributing organization

Pledge Agreement

Applicant Name & Address:      Town of Herndon  
Attention: Richard Smith, PE  
777 Lynn Street  
Herndon, Virginia 20170  
703-435-6800

Project Title:                        Town of Herndon Resilience Resource Assessment

Match Funding Source:              Stormwater Fund

Match Contribution Amount:        Town - \$8,865.36 (10%) / Grant - \$79,788.29 (90%)

"I certify that the Town of Herndon pledges to utilize the Stormwater Fund to pay for this project in full or quarterly prior to CFPF reimbursement."

---



Signature

1/24/2025

---

Date



**Attachment 3.8**  
**Stormwater Fund Documentation**



## Stormwater Fund

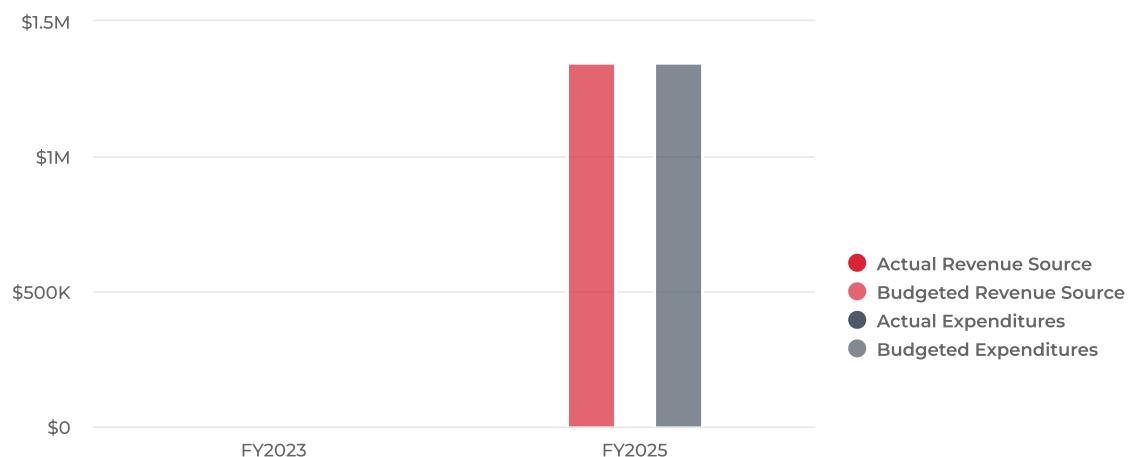
The Stormwater Fund, a governmental special revenue fund has been established for FY 2025. Revenues for the fund consist of shared stormwater tax and grant revenues. These revenues will support the stormwater personnel, operating and project costs, including the stream restoration projects.

Stormwater management is the effort to reduce runoff of rainwater or melted snow into streets, lawns and other sites and the improvement of water quality. Goals of stormwater management include protecting our environment, reducing flooding to protect people and property, reducing demand on public stormwater drainage systems, supporting healthy streams and rivers, and creating healthier, more sustainable communities.



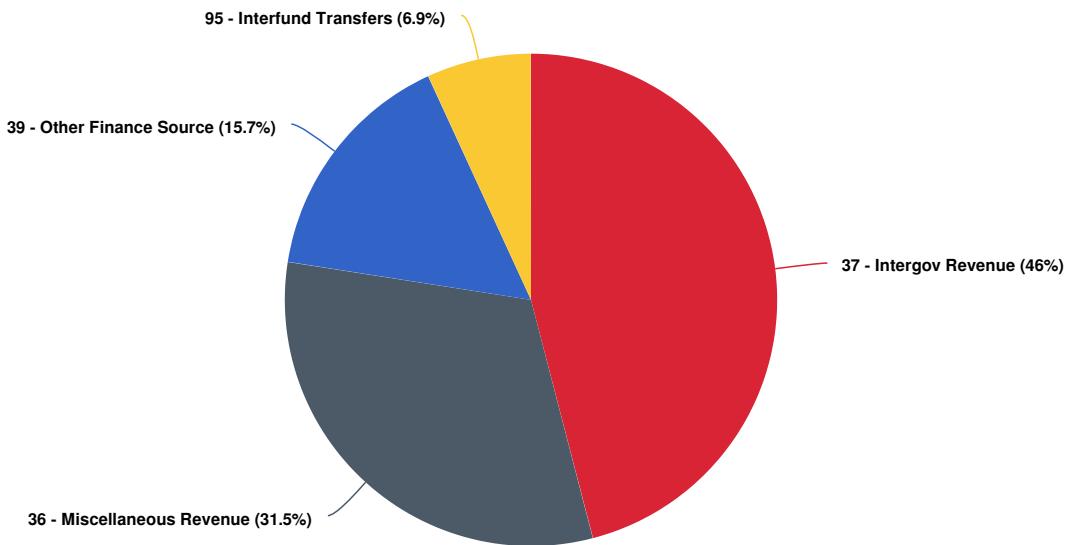
## Summary

The Town of Herndon adopted \$1.35M of revenue and expenditures in FY 2025 in the Stormwater Fund. Projects include the Sugarland-North stream restoration project (\$620K).



## Revenues by Source

Projected 2025 Revenues by Source

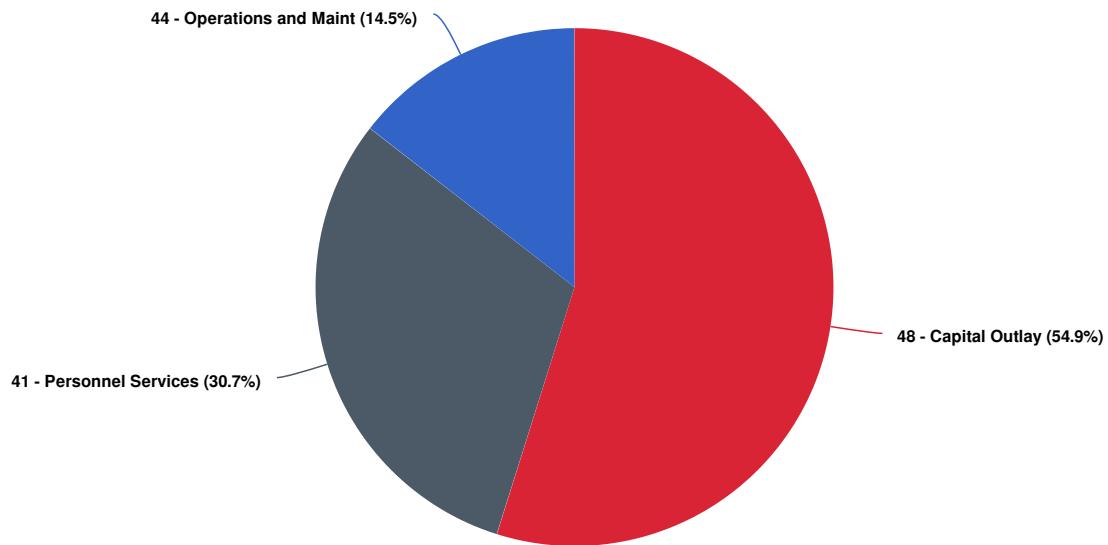


Name	FY2025 Budgeted
Revenue Source	
36 - Miscellaneous Revenue	\$425,000
37 - Intergov Revenue	\$620,000
39 - Other Finance Source	\$211,424
95 - Interfund Transfers	\$92,400
<b>Total Revenue Source:</b>	<b>\$1,348,824</b>



## Expenditures by Expense Type

Budgeted Expenditures by Expense Type



Name	FY2025 Budgeted
Expense Objects	
41 - Personnel Services	\$413,424
44 - Operations and Maint	\$195,400
48 - Capital Outlay	\$740,000
<b>Total Expense Objects:</b>	<b>\$1,348,824</b>



## Appendix B: Budget Narrative Template

<p><b>Applicant</b>  <b>Name:</b> Community Flood          Preparedness Fund &amp;          Resilient Virginia          Revolving Loan Fund  <b>Detailed Budget Narrative</b>  <b>Period of Performance:</b> Spring 2025 through Winter 2025  <b>Submission Date:</b> 12/31/2025</p>	<b>Town of Herndon</b>								
<b>Grand Total State Funding Request</b> <span style="background-color: #4f81bd; color: white; padding: 2px 5px;">\$ 79,788.29</span>									
<b>Grand Total Local Share of Project</b> <span style="background-color: #4f81bd; color: white; padding: 2px 5px;">\$ 8,865.36</span>									
<b>Federal Funding (if applicable)</b> <span style="background-color: #4f81bd; color: white; padding: 2px 5px;">\$ </span>									
<b>Project Grand Total</b> <span style="background-color: #4f81bd; color: white; padding: 2px 5px;">\$ 88,653.65</span>									
<b>Locality Cost Match</b> <span style="background-color: #4f81bd; color: white; padding: 2px 5px;">% 10</span>									
Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						\$8,865.36			\$8,865.36
State Share – CFPF Grant						\$79,788.29			\$79,788.29
State Share – RVRF Match Loan									
Pre-Award/Startup									
Maintenance									
<b>Total</b>	\$	\$	\$	\$	\$	\$ 88,653.65	\$	\$	\$ 88,653.65

Authorization To Request Funding

Applicant Name & Address:      Town of Herndon  
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Herndon, Virginia 20170  
703-435-6800

Project Title:                          Town of Herndon Resilience Resource Assessment

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Signature

---

1/24/2025

Date

Pledge Agreement

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Herndon, Virginia 20170  
703-435-6800

Project Title:                          Town of Herndon Resilience Resource Assessment

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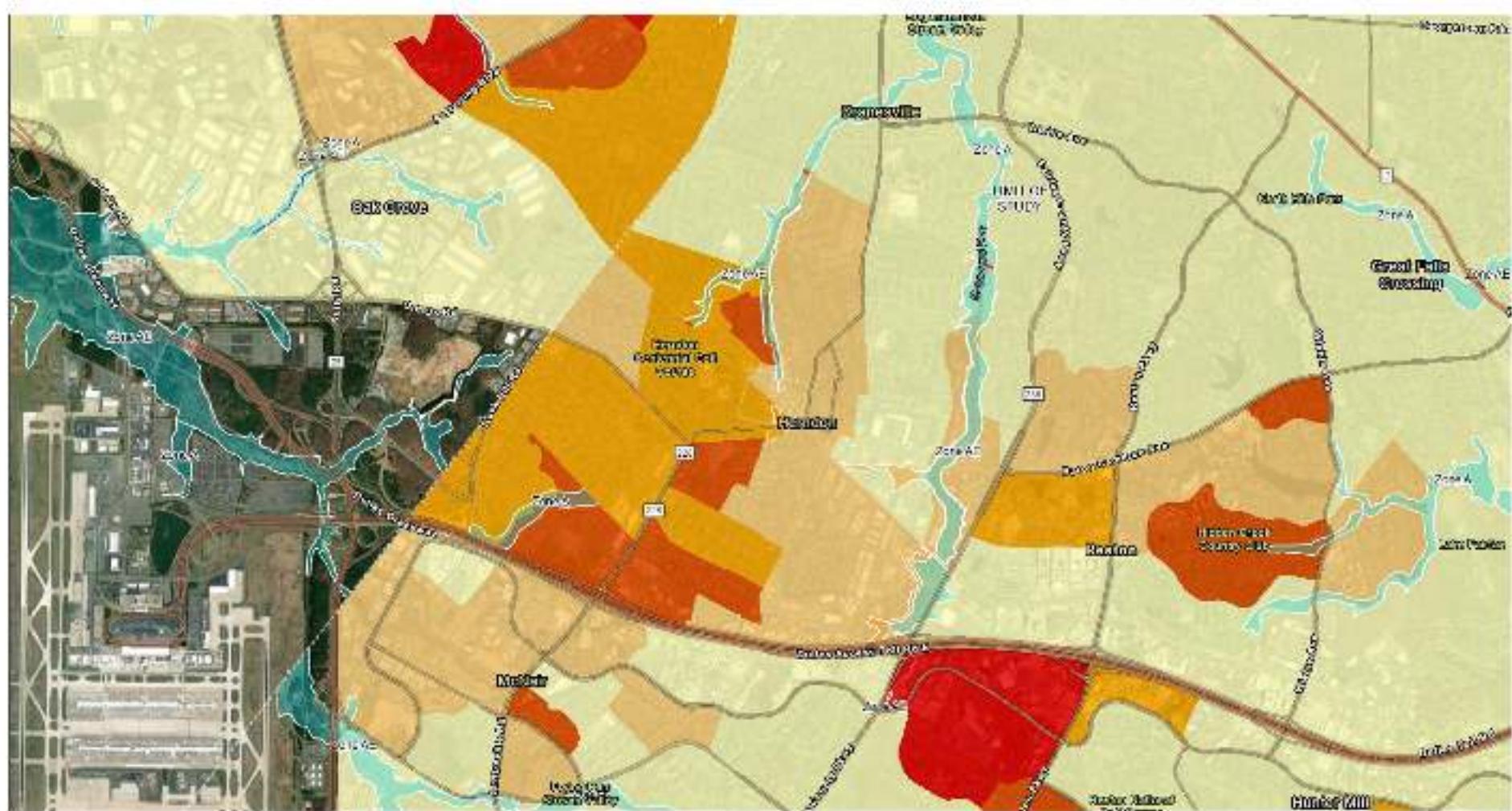
Signature

1/24/2025

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Date

## VFRIS Exporter



1/7/2025, 6:28:40 AM

- Profile Base lines
- Flood Hazard Boundaries
- Limit Lines
- Other Boundary
- Flood Hazard Area
- 0.2% Annual Chance Flood Hazard

- 1% Annual Chance Flood Hazard
- Area of Minimal Flood Hazard
- Social Vulnerability Block Groups 2020
- Very Low Social Vulnerability
- Low Social Vulnerability
- Moderate Social Vulnerability
- High Social Vulnerability
- Very High Social Vulnerability

1:40,377  
0 0.5 1 1.5 2 km

Credit of Location: Fairfax County, VA, TechGeo  
Hazard: Fema, Tecton, Dams, Floodplain  
Geotechnologies, Inc., VETV, AIA, USGS, EPA, NPS  
USDA, USFWS, NOAA



# Herndon 2050 Comprehensive Plan

## Process and Scope Introduction

**Planning Commission Work Session**  
**August 14, 2023**

# What is a Comprehensive Plan?

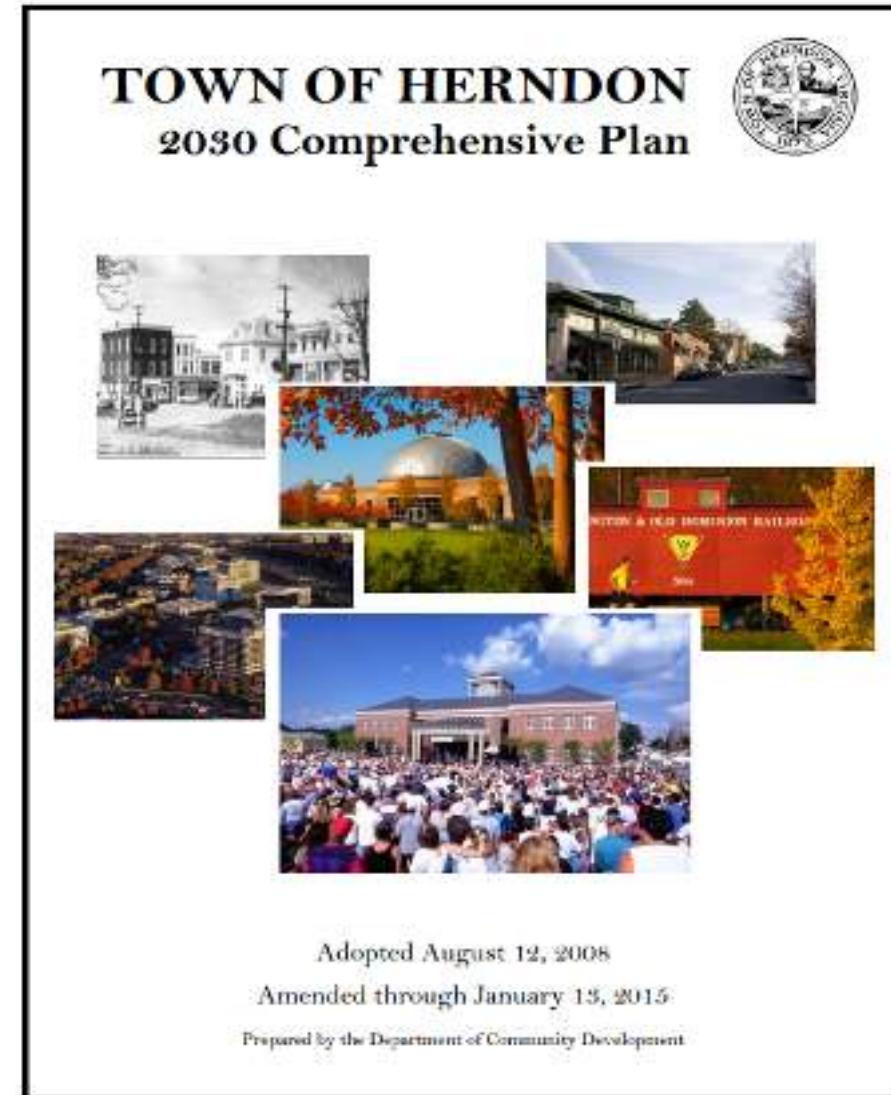
- An overarching policy and long-range landuse document establishing a vision, goals, and strategies to implement them.
- It Provides guidance on land use, transportation, housing, economic development, environment, public facilities, parks and recreation, and design and historic preservation.
- Lead document that guides decision-making, zoning, and budget decisions, (Capital Improvement Program -CIP)

# Comprehensive Plans are required by the Code of Virginia;

- “The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction. "Section 15.2-2223 of the code
- The plan is intended to be general in nature and identify “approximate” locations & characters of major features
- The comprehensive plan should be based on a comprehensive survey and studies of the existing conditions and trends of growth, as well as extensive and iterative public outreach.

# Town of Herndon 2030 Comprehensive Plan

- Adopted August 12, 2008;
- Nine significant amendments including three area plans since adoption.
- A lot has changed since 2008, including;
  - Demographics and Population
  - The opening of the Herndon Silver Line Metro Station
  - Post-Covid economics
  - Housings



# Need for a New Comprehensive Plan

- The Town needs to re-envision its future through a new **2050 Comprehensive Plan** that is based on the recent and emerging economic, environmental, infrastructural, and social realities and challenges.
- **The Herndon 2050 Comprehensive Plan will be the Town's leading policy and long-range landuse document.**

## Current Status;

- A consultant will be hired to help the town facilitate a public-driven planning process and draft the Herndon 2050
- A scope of services for a Request for Proposals (RFP) is currently being developed
- An RFP is anticipated to be posted in the early Fall of 2023.
- The plan development process is expected to take between two to three years to complete.

# **Anticipated Phases and Tasks:**

---

**Phase I, Commencement**

---

**Phase II, Exploration and analysis**

---

**Phase III**

**Visioning and goals setting and Framework**

---

**Phase IV, Plan Preparation**

---

**Phase V, Plan finalization and adoption**

# Anticipated Plan Elements:

The scope of services outlines several key plan chapters and elements, including:

- ✓ Landuse Plan
- ✓ Housing
- ✓ Transportation element as required by the Code of Virginia
- ✓ **Economic Development**
- ✓ **Sustainability, environment, climate change, and resiliency**
- ✓ **Design Identity**
- ✓ Historic Preservation
- ✓ **Digital Master Plan and smart city elements, and**
- ✓ **Implementation strategy**

# Anticipated Chapter/Topics

1. Introduction,  
Purpose  
Foundation - Equity and  
Sustainability  
Incorporation of Smart Cities  
Town History  
Town's Profile
2. Land Use  
Housing (to include Affordable)  
Retail/Commerce  
Office  
Public and Institutional  
Makers Space/Light Industrial  
Mixed-Use  
Transit Development  
Small Area Plans  
Existing  
Future
3. Transportation  
New Transportation Plan  
Parity of Modes  
Safety for All  
Accommodating New  
Needs and Modes  
Equity  
Alternatives and  
Accessibility
4. Economic Development
5. Fiscal Sustainability
6. Design Identity  
Historic Preservation  
Design outside the HDO  
Public Spaces  
Public Art

# Anticipated Chapter/Topics

## 7. Environment and Environmental Sustainability

Urban Forestry  
Stormwater Master Plan  
Chesapeake Bay  
Preservation Act  
Built Environment  
Getting to Net Zero  
Community Energy Plan  
Recycling Program

## 8. Community Services

Parks and Recreation  
Police  
Emergency Management  
Utilities  
Sanitary Sewer  
Water

## 9. Implementation Plan

10. Market Study  
11. Economic Development Strategy

# Grant Funding – DOT, RAISE

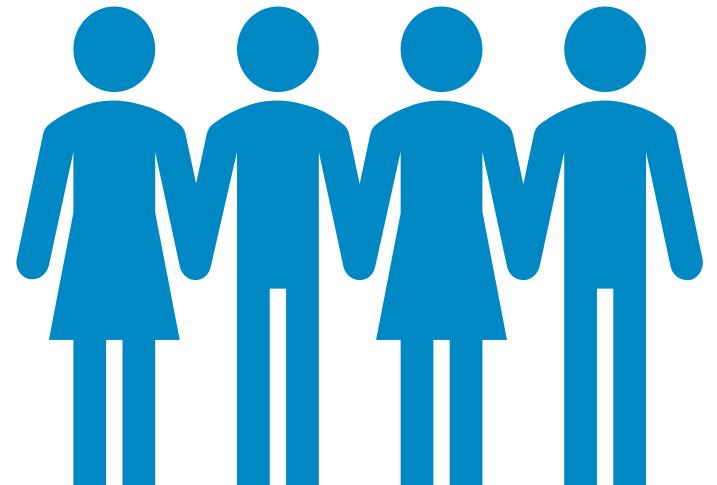
- The Herndon 2050 Planning Project is expected to cost \$900,000.
- The Town has received \$720,000 in funding from DOT/ RAISE Program
  - **Sustainability – Climate Change and Resiliency**
  - **Land use, transportation, reduced carbon emissions, and equity linkage**
  - **Safety and “Safe Systems”/“Vision Zero” in transportation, and**
  - **Equity (Historically Disadvantaged Community)**

# Whose plan is it? The residents and businesses of the Town

**The planning process must be Inclusive;**

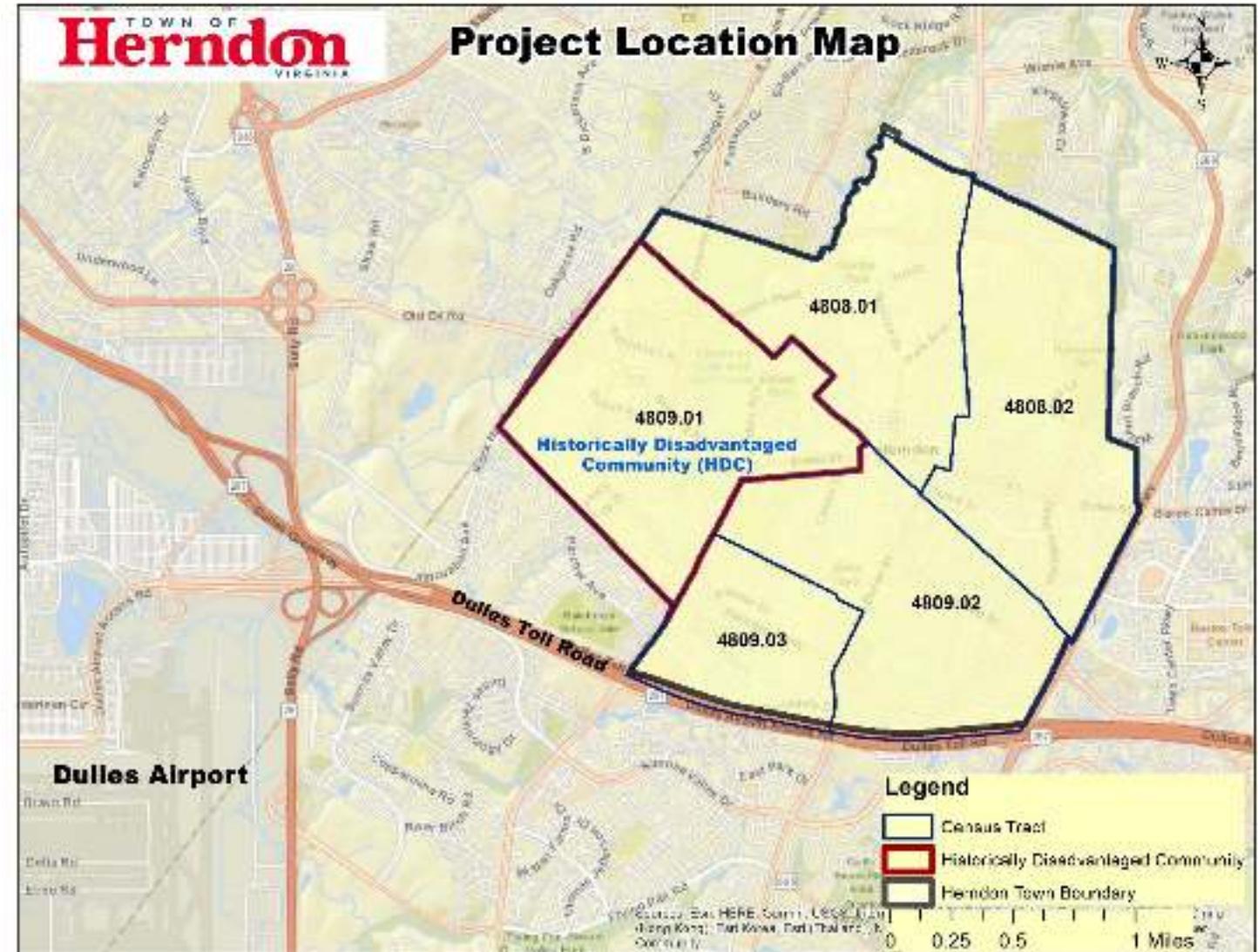
Meaningful outreach to all sectors and communities

- 56.7% of the Herndon Community speaks a Language other than English in their homes
- Historically Disadvantaged Community
- Equity and the need to listen and incorporate



# Historically Disadvantaged Community (HDC)

Census Tract 4809.01 is marked as a Historically Disadvantaged Community Tract by the Department of Transportation (DOT)



# Project Approach

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The Herndon 2050 will be jointly developed with the community and supervised by the town's Planning Commission and staff

---

The project's consultant will work with the town staff to solicit community input in the preparation of the plan.

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Public engagement and consultation will be a continuous trend throughout the project execution and a major driver in the composition of the plan.

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# Expected Public Engagement Activities

- Herndon 2050 website to establish ongoing community engagement and input throughout the project
- Ongoing consultation with community, groups, and committees including:
  - A Herndon 2050 Committee; and
    - Economic Development Advisory Committee (EDAC)
    - The Herndon Bicycle and Pedestrian Advisory Committee (PBAC);
    - The Herndon Diversity, Equity, and Inclusion Committee (HDEIC);



# Early Considerations

- ✓ What should be the town's character and identity? How much or little can it or should it grow? Is there a comparative advantage that should be leveraged?
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- ✓ Need to satisfy the requirements of the Code of Virginia.

## Questions or Comments?



# Herndon 2050 Comprehensive Plan

**Project Scope**

Planning Commission  
Work Session

August 14, 2023

**Sec. 78-60.2. - Floodplain Overlay (FPO).**

- (a) *Purpose and intent.* This section is adopted pursuant to the authority granted to localities by Virginia Code § 15.2-2280. The town welcomes the dedication of floodplain to the town wherever possible for preservation of the floodplain and its use as green space. The floodplain overlay district (FPO) is intended to:
- (1) Provide for safety from flood and other dangers;
  - (2) Protect against loss of life, health, or property from flood or other dangers;
  - (3) Prevent disruption of commerce and government services, the unnecessary expenditure of public funds for flood protection and relief;
  - (4) Preserve and protect floodplains in as natural a state as possible for the preservation of wildlife habitats, for the maintenance of the natural integrity and function of the streams, for the protection of water quality, and for the promotion of a zone for ground water recharge; and
  - (5) Prevent the impairment of the tax base by:
    - a. Regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies;
    - b. Restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;
    - c. Requiring all those uses, activities, and developments that do occur in flood-prone districts to be protected and/or flood-proofed against flooding and flood damage; and
    - d. Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.
- (b) *Applicability.* The provisions of this section shall apply to all lands within the town identified as flood-prone, as follows:
- (1) *Flood-prone land.* Flood-prone land shall not be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered on flood-prone land except in full compliance with the terms and provisions of this section and all other relevant chapters and regulations which apply to the development of the land, such as the Virginia Uniform Statewide Building Code, the town subdivision regulations, and applicable state and federal laws. Records of actions associated with administering this section shall be kept on file and maintained by the zoning administrator or designee.
  - (2) *100-year flood.* The FPO shall include all lands subject to inundation by waters of the 100-year flood. The basis for the delineation of the FPO shall be the flood insurance study for the town prepared by the U.S. Department of Housing and Urban Development, Federal Insurance

Administration, dated February 1979, as may be amended subsequently. The basis for the outermost boundary of the FPO shall be the 100-year flood elevations contained in the flood profiles of the flood insurance study as shown as zone A1—A30 on the accompanying flood insurance rate map, dated April 1, 1979, as amended. Areas designated as either zone A1—A30 or AE shall be that floodplain area for which base flood elevations have been provided in the FIS and FIRM but for which no floodway has been delineated. The delineation of any FPO lands may be revised by the town council where natural or manmade changes have occurred or more detailed studies are conducted or undertaken by the U.S. Army Corps of Engineers, another qualified public agency, or qualified individual professionals demonstrating the advisability of such change. Prior to town council's approval of such a change, approval shall be obtained from the Federal Insurance Administration.

- (3) *Validity.* If any provision of the FPO is declared inapplicable as a result of any legislative or administrative action or judicial discretion, base underlying floodplain overlay district provisions shall remain applicable.
- (c) *Definitions.* See Article XVIII, Definitions, for explanations of words, terms and phrases used in this section.
- (d) *Overlay concept.* The floodplain districts described above shall be overlay to the existing underlying zoning districts as shown on the official zoning ordinance map, and as such, the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions. If there is any conflict between the provisions or requirements of the floodplain district and those of any underlying zoning district, the more restrictive provisions and/or those pertaining to the floodplain district shall apply. In the event any provision concerning a floodplain district is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying zoning provisions shall remain applicable.
- (e) *District boundaries and delineation.* The various floodplain districts shall include special flood hazard areas. The basis for the delineation of these districts shall be the flood insurance study (FIS) and the flood insurance rate maps (FIRM) for Fairfax County and the Town of Herndon prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated September 17, 2010, and any subsequent revisions or amendments thereto, and as described below:
  - (1) *Special floodplain area district (AE zone).* The special floodplain area district shall be those areas identified as an AE zone on the maps accompanying the flood insurance study for which 100-year flood elevations have been provided.
  - (2) *Approximated floodplain district (A zone).* The approximated floodplain district shall be those areas identified as an A zone on the maps accompanying the flood insurance study. In these zones, no detailed flood profiles or elevations are provided, but the 100-year floodplain boundary has been approximated.

- (3) *Shallow flooding district (AO or AH zone).* The shallow flooding district shall be those areas identified as zone AO or AH on the maps accompanying the flood insurance study.
- (f) *Official map.* The boundaries of the special flood hazard and floodplain districts are established as on the flood boundary and floodway map and/or flood insurance rate map which is declared to be a part of this section and which shall be kept on file at the town offices.
- (g) *Administration.* The provisions of this section shall be administered as follows:
- (1) *District boundary modifications.* The delineation of any of the floodplain districts may be revised by the town where natural or man-made changes have occurred and/or where detailed studies have been conducted or undertaken by the U.S. Army Corps of Engineers or other qualified agency, or an individual documents the need for modification. However, prior to any such modification, approval must be obtained from the Federal Insurance Administration.
  - (2) *Interpretation of the floodplain districts.* Interpretations of the boundaries of the floodplain district shall be made by the zoning administrator. Any individual or group disputing a floodplain district boundary interpretation shall have the right to appeal such interpretation to the board of zoning appeals.
  - (3) *Submission of technical data.* A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, the town shall notify the Federal Insurance Administrator of the changes by submitting technical or scientific data. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and flood plain management requirements will be based upon current data.
  - (4) *Permit requirement.* All uses, activities, and development occurring within any floodplain district shall be undertaken only upon the issuance of a building permit subject to the following provisions.
    - a. Such development shall be undertaken only in strict compliance with the provisions of this section and with all other applicable codes and ordinances, as amended, such as the Virginia Uniform Statewide Building Code (VA USBC) and the town's subdivision regulations.
    - b. Prior to the issuance of any such permit, the zoning administrator shall require all applications to include compliance with all applicable state and federal laws and shall review all sites to assure they are reasonably safe from flooding.
    - c. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways of any watercourse, drainage ditch, or any other drainage facility or system.

- (5) *Site plan and permit applications.* All site plan applications for development within the FPO any floodplain district and all building permits issued for the floodplain shall include the following:
- a. An elevation of the base flood at the site;
  - b. An elevation of the lowest floor, including the basement;
  - c. Nonresidential only structures to be flood-proofed shall include the elevation to which the structure will be flood-proofed; and
  - d. Topographic information showing existing and proposed ground elevations.
- (h) *District standard regulations.* Development in the district shall meet the following standards:
- (1) *Building requirements.* New construction and substantial improvements shall be according to the VA USBC, and anchored to prevent flotation, collapse or lateral movement of the structure.
  - (2) *Manufactured homes.* Manufactured homes shall be prohibited in accordance with the regulations of this chapter.
  - (3) *Materials.* New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
  - (4) *Minimize flood damage.* New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.
  - (5) *Utilities.* Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities, including duct work, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
  - (6) *Water supply.* New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
  - (7) *Sanitary sewage systems.* New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
  - (8) *On-site waste disposal.* On-site waste disposal systems, if permitted, shall be located and constructed to avoid impairment to them or contamination from them during flooding.
  - (9) *Alterations, improvements, repairs and reconstruction.* Any alteration, repair, reconstruction or improvements to a building that is in compliance with the provisions of this chapter shall meet the requirements of "new construction" as contained in this chapter. Any alteration, repair, reconstruction or improvements to a building that is not in compliance with the provisions of this section, shall be undertaken only if the nonconformity is not furthered, extended, or replaced.
- (10)

*Additional regulations for special flood hazard areas.* In addition to the above regulations, the following shall apply to all special flood hazard areas:

- a. Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within this jurisdiction a permit shall be obtained from the U.S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and the Federal Insurance Administrator.
- b. The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

(i) *District specific regulations.* Development in the district shall meet the following specific standards:

- (1) *Site plan and special exception requirement.* Uses, activities, and development occurring within the FPO shall be undertaken only upon the issuance of approval of a site plan and special exception pursuant to this section, other than restoration or replacement of single-family detached dwellings after casualty damage.
- (2) *Uses.* Those uses that are allowed by right in the underlying zoning district are allowed upon the approval of a special exception pursuant to section 78-155.3, special exception, and section 78-155.3(e)(2), special review standards for the Floodplain Overlay District. Any special exceptions that are issued shall be noted in the annual report submitted to the federal insurance administrator.
- (3) *Notification requirements.* In addition to the notification requirements described in Article XV, further notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Virginia Department of Conservation and Recreation (Floodplain Management Program) and the Federal Insurance Administration.
- (4) *No change in carrying capacity/volume/velocity.* Under no circumstances shall any use, activity or development decrease the carrying capacity of, or increase the volume or velocity of inflow to, the channels of floodways of any watercourse, drainage ditch or any other drainage facility or system.
- (5) *No increase in elevation of 100-year flood.* No new construction, or development shall be permitted within the floodplain overlay district unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, does not increase the elevation of the 100-year flood at any one point.
- (6)

*Alteration and relocation channels/watercourse.* Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within the town, a permit from the U.S. Army Corps of Engineers and certification from the Virginia State Water Control Board may be necessary. A joint permit application is available from one of these organizations. Further notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Floodplain Management Program) and the Federal Insurance Administration.

- (7) *Submission requirements.* All applications for development in the floodplain overlay district issued for the floodplain shall comply with the submittal requirements described in section 78-155.3.
- (8) *New construction.* The proposed building site must be reasonably safe from flooding. If a proposed building site is in a flood-prone area, all new construction and substantial improvements shall meet the following standards:
  - a. Be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy,
  - b. Be constructed with materials resistant to flood damage,
  - c. Be constructed by methods and practices that minimize flood damages, and
  - d. Be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- (9) *Construction standards for enclosed areas below flood elevation.* New construction and substantial improvements with fully enclosed areas below the regulatory flood protection level that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be constructed entirely of flood resistant materials below the regulatory flood protection elevation and designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:
  - a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
  - b. The total net area of all openings must be at least one square inch for each square foot of enclosed area subject to flooding.
  - c. If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.

- d. The bottom of all openings shall be no higher than one foot above grade.
  - e. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
  - f. Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.
- (10) *Elevation standards for residential structures.* New construction and substantial improvements of residential structures within zones A1—30, AE and AH zones on the flood insurance rate map shall have the lowest floor (including basement) elevated no lower than 18 inches above the base flood level.
- (11) *Elevation standards and floodproofing standards for nonresidential structures.* New construction and substantial improvements of nonresidential structures within zones A1—30, AE and AH zones on the flood insurance rate map shall have the lowest floor (including basement) elevated no lower than 18 inches above the base flood level or, together with attendant utility and sanitary facilities, be designed so that below the base flood level plus one foot the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are floodproofed, shall be maintained by the zoning administrator.
- (12) *Design criteria for utilities and facilities.* The following criteria shall apply in the district:
- a. *Utilities.* All utilities and facilities, such as sewer, gas, electrical, telecommunication, and water systems being placed in flood-prone areas should be located, elevated (where possible), and constructed to minimize or eliminate flood damages.
  - b. *Drainage facilities.* All drainage facilities shall be designed to convey the flow of stormwater runoff in a safe and efficient manner. The system shall ensure proper drainage along streets, and provide positive drainage away from buildings. The system shall also be designed to prevent the discharge of excess runoff onto adjacent properties. The town council may require a primarily underground system to accommodate frequent floods and a secondary surface system to accommodate larger, less-frequent floods. Drainage plans shall be consistent with local and regional drainage plans.
  - c. *Water facilities.* All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and be located and constructed to minimize or eliminate flood damage and impairment.

- d. *Sanitary facilities.* All new and replacement sanitary sewage systems, private package sewage treatment plants, and onsite wastewater treatment systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters. In addition, they should be located and constructed to minimize or eliminate flood damage and impairment.
- e. *Streets and sidewalks.* Streets and sidewalks should be designed to minimize their potential for increasing and aggravating the levels of flood flow. Drainage openings may be required to sufficiently discharge flood flows without unduly increasing flood heights.

- (13) *Modification, alterations, repairs and reconstruction of existing structures.* The following standards shall apply in the district:
- a. Existing structures in the floodplain area shall not be expanded or enlarged unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed expansion would not result in any increase in the base flood elevation.
  - b. In the floodplain overlay district, the modification, alteration, repair, reconstruction or improvement that amounts to less than 50 percent of its market value shall conform to the VA USBC.
  - c. The modification, alteration, repair, reconstruction, or improvement of any kind to a structure and/or use, regardless of its location in a floodplain area to an extent or amount of 50 percent or more of its market value shall be undertaken only in full compliance with this chapter and shall require the entire structure to conform to the VA USBC.
  - d. If the structure in the floodplain overlay district is designed and used as a single-family detached dwelling that is a permitted use in the zoning district pursuant to Table 78-70.2. D: Table of Principal Permitted and Allowed Uses, it may be restored in its location prior to casualty so long as:
    1. The restoration is begun within 12 months and completed within 24 months of the casualty;
    2. The modification, alteration, repair, reconstruction or improvement is elevated or flood proofed or both to the greatest extent possible;
    3. The structure occupies the same space it occupied prior to the casualty; and
    4. No dwelling units are added.

- (14) *Recreational vehicles.* Recreational vehicles may be placed on sites for fewer than 180 consecutive days and must be fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices.

(j)

*Special floodplain district regulations and map revisions.* Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as zones A and AE on the flood insurance rate map, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the town. Development activities in zones A, AE, and AH, on the town's flood insurance rate map which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the applicant first applies with the town's endorsement for a conditional flood insurance rate map revision, and receives the approval of the Federal Emergency Management Agency.

- (k) *Approximated floodplain regulations.* The approximated floodplain district shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a 100-year floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the flood insurance study. For these areas, the 100-year flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. It is recommended that the applicant refer to FEMA 265, "Managing Floodplain Development in Approximate Zone A Areas, A Guide for Obtaining and Developing Base (100-Year) Flood Elevations." Where the specific 100-year flood elevation cannot be determined for this area using other sources of data, such as the U.S. Army Corps of Engineers Floodplain Information Reports, U.S. Geological Survey Flood-Prone Quadrangles, etc., an applicant for a proposed use, development and/or activity greater than 50 lots or five acres, whichever is lesser, shall determine this elevation in accordance with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the zoning administrator.
- (l) *Shallow flooding district regulations.* The following standards shall apply in shallow flooding districts.
- a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the flood insurance rate map, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two feet above the highest adjacent grade.
  - b. All new construction and substantial improvements of nonresidential structures shall:
    - 1.

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

2. Together with attendant utility and sanitary facilities be completely flood-proofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
- c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

(m) *Subdivision applications regulations.* All subdivision applications within the district shall:

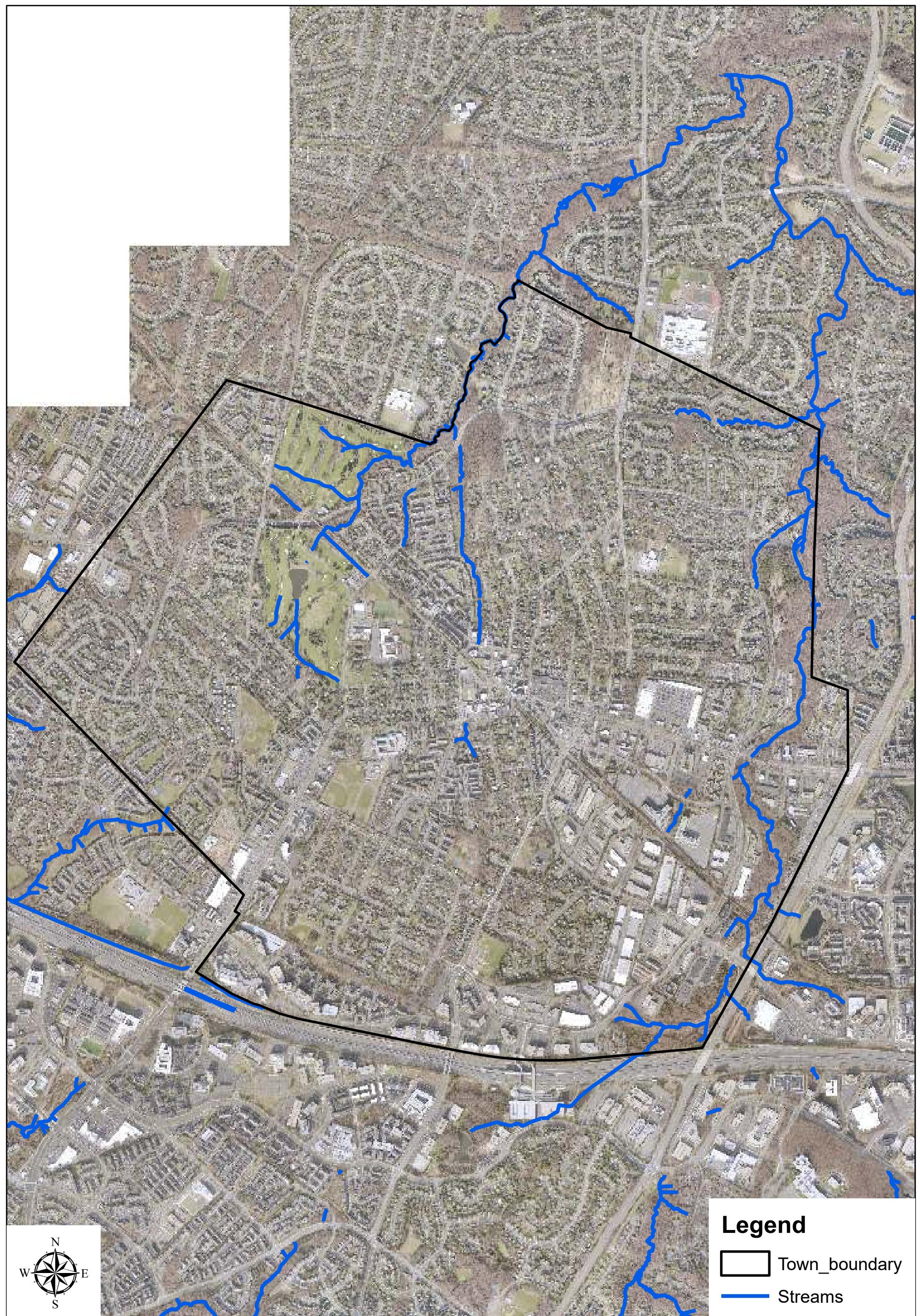
- (1) *Minimize damage.* All subdivision proposals shall be consistent with the need to minimize flood damage;
- (2) *Utilities.* All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
- (3) *Drainage.* All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards; and
- (4) *Flood elevation.* Base flood elevation data shall be provided for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed 50 lots or five acres, whichever is the lesser.

(n) *Violations.* Violation of district regulations shall be addressed as follows:

- (1) *Penalty for violations.* Any person who fails to comply with any of the requirements or provisions of this section or directions of the zoning administrator or any authorized designee of the town pursuant to this section shall be guilty of a civil violation and subject to the penalties in accordance with section 78-170.4(a) of this chapter.
  - (2) *Correction of violations.* In addition to the above penalties, all other actions are hereby reserved, including an action in equity for the proper enforcement of this article. The imposition of a fine or penalty for any violation of, or noncompliance with, this article shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations or noncompliance within a reasonable time. Any structure constructed, reconstructed, enlarged, altered or relocated in noncompliance with this article may be declared by the town to be a public nuisance and abatable as such. Flood insurance may be withheld from structures constructed in violation of this article.
- (o) *Variances.* See section 78-155.4(d)(2), variances in the floodplain overlay district, for regulations governing variances in floodplains.

- (p) *Nonconformities.* See Article XVI, Nonconformities, for regulations governing nonconformities in floodplains.
- (q) *Municipal liability.*
  - (1) *Limitations.* The degree of flood protection sought by the provisions of this section 78-60.2, floodplain overlay district (FPO), is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study. Larger floods may occur. Flood heights may be increased by manmade or natural causes, such as ice jams and the restriction of bridge openings by debris. This section does not imply that areas outside the FPO, or that land uses permitted within those districts, will be free from flooding or flood damages.
  - (2) *Personal liability.* This section shall not create liability on the part of the town or any officer or employee of the town for any flood damages that result from reliance on this section or any administrative decision lawfully made under this section.
- (r) *Conflict with other regulations.* In cases where the requirements of this section conflict with any other provisions of the Herndon Town Code, or state code regulations, the restrictions of this section shall apply in flood-prone districts.
- (s) *Severability.* The subsections, paragraphs, sentences, clauses and phrases of this section are severable, and if any phrase, clause, sentence, paragraph or subsection of this section shall be declared unconstitutional or invalid by the valid judgment or decree of a court of competent jurisdiction, such unconstitutionality or invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs or subsections of this section. The remaining portions shall remain in full force and effect.

(Ord. No. 17-O-13, 8-8-2017; Ord. No. 20-O-61, § 1, 11-17-2020)



# Town of Herndon Resilience Resource Assessment

## NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The [community map repository](#) should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS). Other data and analyses that may be available in the FIRM panel for this FIRM are present and used whole-foot for insurance purposes. BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevation (BFEs)** shown on this map apply only landward of 0.0 elevation. Geodetic Vertical Datum (NGVD). Users of the FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Transverse Mercator (UTM) zone 18. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov) or contact the National Geodetic Survey at the following address:

Spatial Reference System Division  
National Geodetic Survey, NOAA  
Silver Spring Metro Center  
1315 East-West Highway  
Silver Spring, Maryland 20910  
(301) 713-3242

To obtain current elevation, description, and/or location information for **benchmarks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit their website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov).

Base map information shown on this FIRM was provided in digital format by the County of Fairfax GIS Department, including hydrography and political boundaries. These files were compiled at a scale of 1:2400 based on the available 2000 DOQQ aerial photography. Additional information may have been derived from other sources.

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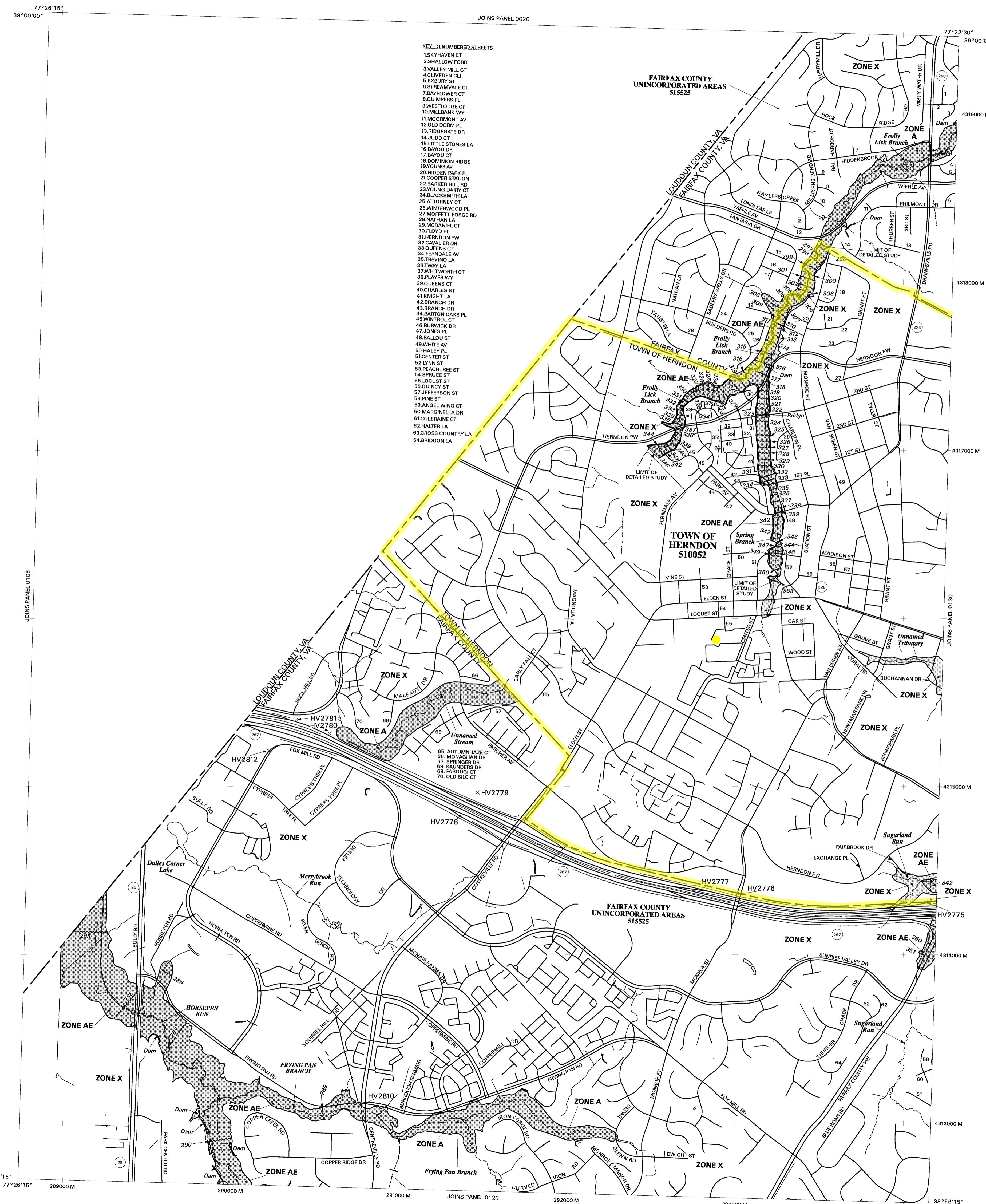
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for information on all related products available from FEMA;

Phone: 800-358-9616  
FAX: 800-358-9620  
<http://msc.fema.gov>

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This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplain and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.



## LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION  
BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of 0.2% and greater annual chance floods are also included.

The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

**ZONE A** No base flood elevations determined.

**ZONE AE** Base flood elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); base flood elevations determined. For areas of alluvial fan flooding, velocities above 1 ft/sec are determined.

**ZONE AR** Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

**ZONE A99** Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

**ZONE V** Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

### FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

### OTHER FLOOD AREAS

**ZONE X** Area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

### OTHER AREAS

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.

### COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

### OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Legend entries include:

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different CBRS and OPA types
- Base Flood Elevation line and value; elevation in feet\*
- (EL. 987) Base Flood Elevation value where uniform within zone; elevation in feet\*
- \*Referenced to the National Geodetic Vertical Datum of 1929
- Cross Section Line
- Transect Line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4300000 M 1000-meter Universal Transverse Mercator tick values, zone 18
- DX5510 X Bench mark (see explanation in Notes to Users section of this FIRM panel).
- M1.5 River Mile

MAP REPOSITORY  
Refer to Repository Listing on Index Map  
EFFECTIVE DATE OF COUNTYWIDE  
FLOOD INSURANCE RATE MAP  
SEPTEMBER 17, 2010  
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 1000'  
500 0 1000 2000 FEET  
300 0 300 600 METERS

## PANEL 0110E

### FIRM FLOOD INSURANCE RATE MAP

FAIRFAX COUNTY,  
VIRGINIA  
AND INCORPORATED AREAS

#### PANEL 110 OF 450

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY NUMBER PANEL SUFFIX

FAIRFAX COUNTY UNINCORPORATED AREAS 515525 0110 E  
HERNDON, TOWN OF 510052 0110 E

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER  
51059C0110E  
EFFECTIVE DATE:  
SEPTEMBER 17, 2010

Federal Emergency Management Agency

## NOTES TO USERS

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To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study report for this jurisdiction. Flood elevations may be available on the FIRM represent rounded whole-foot elevation. These figures are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevation (BFEs)** shown on this map apply only landward of O.O. National Geodetic Vertical Datum (1929). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with respect to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

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Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov) or contact the National Geodetic Survey at the following address:

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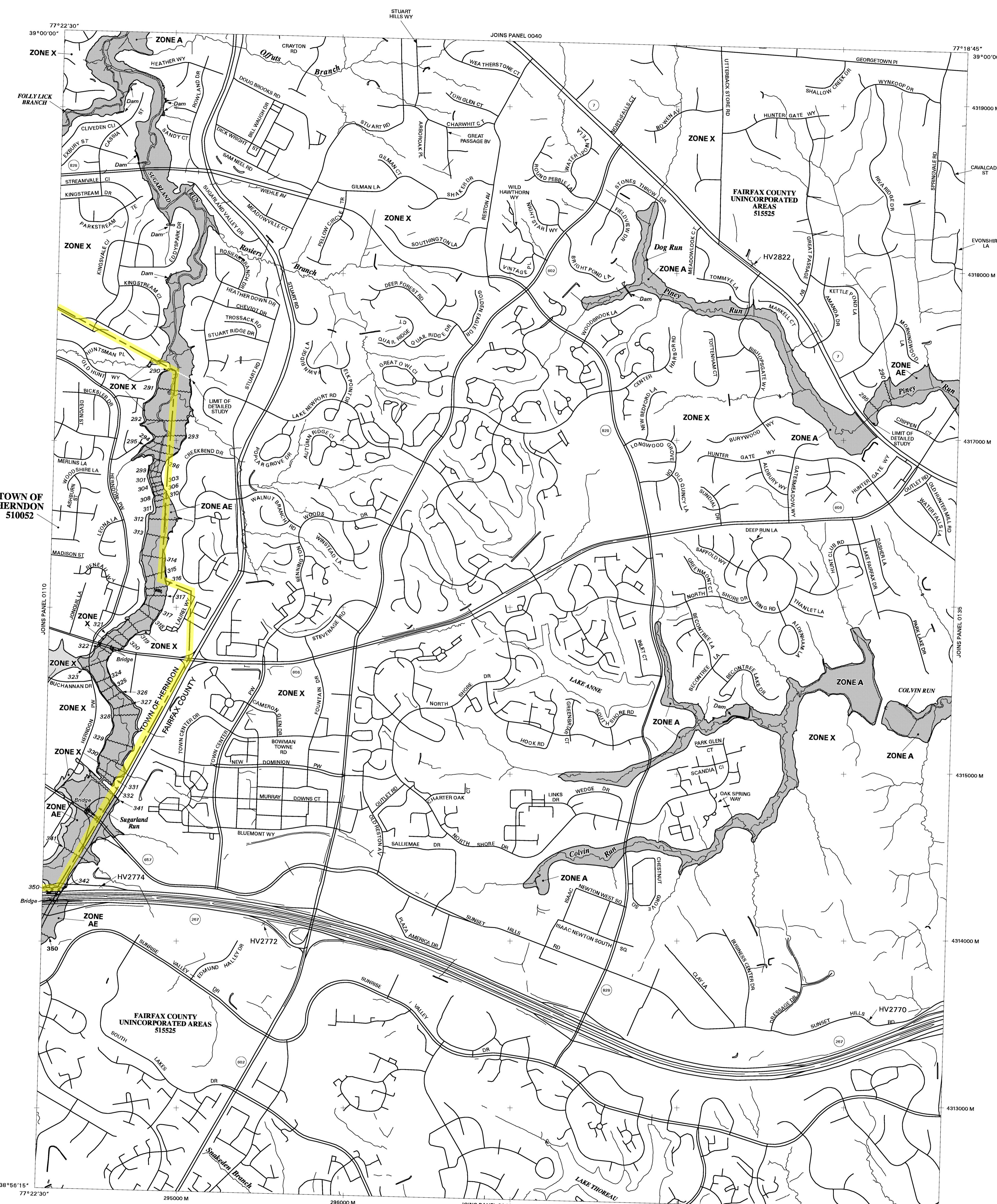
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FAX: 800-358-9620  
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## LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of flood hazard include AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

No base flood elevations determined.

Base flood elevations determined.

Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

### FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

### OTHER FLOOD AREAS

Area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

### OTHER AREAS

Areas determined to be outside the 0.2% annual chance floodplain.

### ZONE X

Areas in which flood hazards are undetermined, but possible.

### COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

CBRS boundary

Floodway boundary

Zone boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.

Base Flood Elevation line and value; elevation in feet\*

(EL. 987)

Base Flood Elevation value where uniform within zone; elevation in feet\*

\*Referenced to the National Geodetic Vertical Datum of 1929

Cross Section Line

Transect Line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

97°07'30", 32°22'30"

1000-meter Universal Transverse Mercator tick values, zone 18

Bench mark (see explanation in Notes to Users section of this FIRM panel).

River Mile

M1.5

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

SEPTEMBER 17, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 1000'

500 0 1000 FEET

300 0 300 600 METERS

PANEL 0130E			
<b>FIRM</b> <b>FLOOD INSURANCE RATE MAP</b>			
FAIRFAX COUNTY, VIRGINIA AND INCORPORATED AREAS			
PANEL 130 OF 450			
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)			
CONTAINS:			
COMMUNITY	NUMBER	PANEL	SUFFIX
FAIRFAX COUNTY UNINCORPORATED AREAS HERNDON, TOWN OF	515526	0130	E
	510052	0130	E
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.			
MAP NUMBER 51059C0130E			
EFFECTIVE DATE: SEPTEMBER 17, 2010			

Federal Emergency Management Agency