

# 1967 - Loudoun County - Village of Waterford, VA Stormwater Master Plan Development

## Application Details

**Funding Opportunity:** 1448-Virginia Community Flood Preparedness Fund - Study Grants - CY23 Round 4  
**Funding Opportunity Due Date:** Nov 12, 2023 11:59 PM  
**Program Area:** Virginia Community Flood Preparedness Fund  
**Status:** Under Review  
**Stage:** Final Application

**Initial Submit Date:** Nov 8, 2023 3:48 PM  
**Initially Submitted By:** Barb Lawrence  
**Last Submit Date:**  
**Last Submitted By:**

## Contact Information

### Primary Contact Information

**Active User\*:** Yes

**Type:** External User

**Name\*:** Ms. Barb Lawrence  
Salutation First Name Middle Name Last Name

**Title:**

**Email\*:** [barbara.lawrence@loudoun.gov](mailto:barbara.lawrence@loudoun.gov)

**Address\*:** 1 Harrison Street SE

Leesburg Virginia 20175  
City State/Province Postal Code/Zip

**Phone\*:** 571-258-3996 Ext.  
Phone  
### ### ####

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

**Comments:**

### Organization Information

**Status\*:** Approved

**Name\*:** Loudoun County

**Organization Type\*:** County Government

**Tax ID\*:** 540948306

**Unique Entity Identifier (UEI)\*:** T6BKTJUZV/29  
**Organization Website:**  
**Address\*:** 1 Harrison Street SE  
  
Leesburg Virginia 20175-  
City State/Province Postal Code/Zip  
**Phone\*:** 571-258-3996 Ext.  
### ### ###  
**Fax:** ### ### ###  
**Benefactor:**  
**Vendor ID:**  
**Comments:**

## VCFPF Applicant Information

### *Project Description*

**Name of Local Government\*:** Loudoun County  
Your locality's CID number can be found at the following link: [Community Status Book Report](#)

**NFIP/DCR Community Identification Number (CID)\*:** 510090

If a state or federally recognized Indian tribe,

**Name of Tribe:**

**Authorized Individual\*:** George Govan  
First Name Last Name

**Mailing Address\*:** 1 Harrison Street SE  
Address Line 1  
Address Line 2

Leesburg Virginia 20175  
City State Zip Code

**Telephone Number\*:** 571-367-8604

**Cell Phone Number\*:** 571-367-8604

**Email\*:** [George.Govan@loudoun.gov](mailto:George.Govan@loudoun.gov)

Is the contact person different than the authorized individual?

**Contact Person\*:** No

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

### **Project Description\*:**

The project this grant would fund is for the development of a Stormwater Management (SWM) Master plan for the Village of Waterford. This study will evaluate the existing hydrologic and hydraulic features of the Village and determine conceptual solutions to help abate localized drainage issues and impacts due to large scale flooding. The findings of this study will be utilized as part of the final design for the Village of Waterford Infrastructure improvement project.

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?

<b>Benefit a low-income geographic area*:</b>	No
Information regarding your census block(s) can be found at <a href="https://www.census.gov">census.gov</a>	
<b>Census Block(s) Where Project will Occur*:</b>	3027, 3016,4005,4004,3028,4053,4007,4006,4002,3029,4003, 3026
<b>Is Project Located in an NFIP Participating Community?*</b>	Yes
<b>Is Project Located in a Special Flood Hazard Area?*</b>	Yes
<b>Flood Zone(s) (if applicable):</b>	AE, A, X
<b>Flood Insurance Rate Map Number(s) (if applicable):</b>	51107C0085E, 51107C0105E, 51107C0095E, 51107C0115E

## Eligibility - Round 4

### Eligibility

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

**Local Government\*:** Yes  
 Yes - Eligible for consideration  
 No - Not eligible for consideration

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

**Letters of Support\*:** Yes  
 Yes - Eligible for consideration  
 No - Not eligible for consideration

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

**Previously Funded\*:** No  
 Yes - Not eligible for consideration  
 No - Eligible for consideration

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

**Evidence of Match Funds\*:** Yes  
 Yes - Eligible for consideration  
 No - Not eligible for consideration  
 N/A - Match not required

## Scope of Work - Studies - Round 4

### Scope of Work

#### Upload your Scope of Work

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

**Scope of Work\*:** [2023-10\\_27\\_Village\\_of\\_Waterford\\_SWM\\_Masterplan\\_Proposal1.pdf](#)

#### Comments:

See Appendix A of the attached combined grant deliverable for the Scope of Work narrative required as part of the CFPF application. The consultant's scope of service to develop the SWM master plan has been uploaded.

### Budget Narrative

**Budget Narrative Attachment\*:** [Section B - Combined V1.pdf](#)

#### Comments:

Attached is the budget narrative, budget narrative template, and source of funding for the project, which can be found in the combined grant deliverable.

## Scoring Criteria for Studies - Round 4

### Scoring

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

**Revising Floodplain Ordinances\*:** No  
Select

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

**Mapping Platform\*:** No  
Select

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

**Hydrologic and Hydraulic Studies\*:** No  
Select

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

Updating precipitation data and IDF information (rain intensity, duration, frequency estimates) including such data at a sub-state or regional scale on a periodic basis.

**Updating Precipitation Data and IDF Information\*:** No  
Select

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

**Projections\*:** No  
Select

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

**Vulnerability Analysis\*:** Yes  
Select

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

**Flash Flood Studies\*:** Yes  
Select

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

**Stream Gauge Monitoring\*:** No  
Select

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

**Delineations of Areas of Recurrent Flooding\*:** No  
Select

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

**Regional Flood Studies\*:** Yes  
Select

Regional Hydrologic and Hydraulic Studies of Floodplains

**Regional Hydrologic and Hydraulic Studies of Floodplains\*:** Yes  
Select

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

**Potential Land Use Strategies\*:** Yes  
Select

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

**Other Proposals\*:** No  
Select

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

Social Vulnerability Scoring:

Very High Social Vulnerability (More than 1.5)

High Social Vulnerability (1.0 to 1.5)  
Moderate Social Vulnerability (0.0 to 1.0)  
Low Social Vulnerability (-1.0 to 0.0)  
Very Low Social Vulnerability (Less than -1.0)

**Socially Vulnerable\*:** Very Low Social Vulnerability (Less than -1.0)

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

**NFIP\*:** No

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

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

**Low-Income Geographic Area\*:** No

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

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

**Reduction of Nutrient and Sediment** No

**Pollution\*:**

**Comments:**

## Scope of Work Supporting Information - Studies

---

### *Scope of Work Supporting Information*

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

**New or Updated Study\*:** New Study

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

**Relationship of Study to Priorities Contained in this Manual\*:**

Loudoun County will utilize this grant funding to assist the residents of the Village of Waterford with recurring localized drainage and flooding issues, as well as project The Village of Waterford's rich heritage and National Historic Landmark status.

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

**Qualifications of Individuals Conducting Study\*:**

Please see Section A of the combined grant deliverable for resumes of the individuals who will be conducting the study.

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

**Expected use of Study Results\*:**

The study will be utilized to identify the inadequacies in the existing Village of Waterford stormwater management and infrastructure systems, and then model proposed solutions that will assist in developing strategies to prevent and mitigate damages from the riverine and localized flooding.

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

**Statewide Improvements\*:**

N/A

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

**Repetitive Loss and/or Severe Repetitive Loss Properties\*:** [Repetitive Loss response.docx](#)

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

**Residential and/or Commercial Structures\*:**

There are several historic residential structures located within the Village of Waterford that are impacted by drainage and flooding issues. Section A of the combined grant deliverable contains a letter provided from the Waterford Foundation documenting historic and recurring flooding issues.

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

**Critical Facilities/Infrastructure\*:**

N/A

## Budget

### Budget Summary

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

**Total Project Amount\*:** \$120,000.00

**REQUIRED Match Percentage Amount:** \$60,000.00

## BUDGET TOTALS

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

**Match Percentage:** 50.00%  
Verify that your match percentage matches your required match percentage amount above.

**Total Requested Fund Amount:** \$60,000.00

**Total Match Amount:** \$60,000.00

**TOTAL:** \$120,000.00

### Personnel

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

### Fringe Benefits

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

### Travel

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

### Equipment

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

### Supplies

Description	Requested Fund Amount	Match Amount	Match Source
-------------	-----------------------	--------------	--------------

No Data for Table

**Construction**

Description	Requested Fund Amount	Match Amount	Match Source
-------------	-----------------------	--------------	--------------

No Data for Table

**Contracts**

Description	Requested Fund Amount	Match Amount	Match Source
-------------	-----------------------	--------------	--------------

Development of a Stormwater Management Masterplan for the Village of Waterford	\$60,000.00	\$60,000.00	Cash
	<b>\$60,000.00</b>	<b>\$60,000.00</b>	

**Pre-Award and Startup Costs**

Description	Requested Fund Amount	Match Amount	Match Source
-------------	-----------------------	--------------	--------------

No Data for Table

**Other Direct Costs**

Description	Requested Fund Amount	Match Amount	Match Source
-------------	-----------------------	--------------	--------------

No Data for Table

## Supporting Documentation

**Supporting Documentation**

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)		FEMA Features, Social Vulnerability Index, Photo Location map, and Village of Waterford overall map.	<a href="#">Section C - Detailed Project Maps.pdf</a>	pdf	3 MB	11/08/2023 02:48 PM
FIRMette of the project area(s) (Projects/Studies)		Section C Firmette Maps.	<a href="#">Section C Firmettes.pdf</a>	pdf	1023 KB	11/08/2023 02:50 PM
Historic flood damage data and/or images (Projects/Studies)		Section C historic flooding photos and documentation of inadequate drainage infrastructure.	<a href="#">PhotoLog.pdf</a>	pdf	2 MB	11/08/2023 02:52 PM
A link to or a copy of the current floodplain ordinance		The Loudoun County Floodplain Ordinance is Section 4-1500 of the Zoning Ordinance	<a href="#">Loudoun County Floodplain Ordinance.pdf</a>	pdf	5 MB	11/08/2023 02:33 PM
Maintenance and management plan for project						
A link to or a copy of the current hazard mitigation plan						
A link to or a copy of the current comprehensive plan		See Chapter 3 - Natural, Environmental, and Heritage Resources	<a href="#">Loudoun County Comprehensive Plan.pdf</a>	pdf	134 MB	11/08/2023 02:55 PM
Social vulnerability index score(s) for the project area		Social Vulnerability Map and scores.	<a href="#">VFRIS Social Vulnerability.pdf</a>	pdf	929 KB	11/08/2023 02:56 PM
Authorization to request funding from the Fund from governing body or chief executive of the local government		Attached is an internal grant application summary form, signed by the department director and the county administrator's designated authorized signatory.	<a href="#">DTCL_CFPF_Grant_Application_Summary_Form_Waterford.pdf</a>	pdf	399 KB	11/08/2023 02:31 PM
Signed pledge agreement from each contributing organization						
Maintenance Plan						
Benefit Cost Analysis		<i>Benefit-cost analysis must be submitted with project applications over \$2,000,000. in lieu of using the FEMA benefit-cost analysis tool, applicants may submit a narrative to describe in detail the cost benefits and value. The narrative must explicitly indicate the risk reduction benefits of a flood mitigation project and compares those benefits to its cost-effectiveness.</i>				
Other Relevant Attachments		Village of Waterford Combined Grant Deliverable.	<a href="#">Village of Waterford Combined Grant Deliverable.pdf</a>	pdf	10 MB	11/08/2023 02:58 PM

### Letters of Support

Description	File Name	Type	Size	Upload Date
Letter from the Waterford Foundation documenting historic flooding.	<a href="#">Waterford Foundation Impacted Stakeholders Letter.pdf</a>	pdf	58 KB	11/08/2023 02:59 PM



# Grant Application Summary Form

## Basic Information

Name of Grant: Virginia Community Flood Preparedness Fund Funding Agency: Clean Energy and Community Flood Preparedness Act

Department: Virginia Department of Conservation and Recreation

Department Director Signature: *Nancy Boyd* Date: 10//31/20/23

Name of grant program manager/staff contact: Kelly Griffin/Marie Caraballo

Amount of grant funding request: \$ 60,000 Application Due Date: 11 / 12 / 2023

Grantor:  Federal  State  Private/Foundation  Grant Type:  New  Continuation

Local Match Required?  Yes  No

If yes, Amount/Type of Local Match: \$60,000 (50% match) cash  
 in-kind

If yes, are Local match funds available in existing department appropriations:  Yes  No

If yes, what is the funding source and fiscal year(s)? C02500-1.02-D00401-60021-504-Capital Construction

If no, what is the plan to meet the match requirement?

Describe the authorized uses of funds: (Salary & benefits, Supplies, Contractual Services, Travel, Other.)

Contractual services for the preparation of a Floodplain and Drainage Study for the Village of Waterford Preserving the Landmark Infrastructure Improvement Project.

Grant time period: 01 / 01 / 2024 to 01 / 01 / 2027

Are there any requirements to renew beyond this time?  Yes  No

If yes, what are they and how will they be funded?

Are there any special conditions or provisions related to "maintenance of effort"? (Conditions or provisions that require the County to maintain this program after grantor funding is no longer available?)  Yes  No

If yes, what are they?

Are there any other special conditions or provisions for this funding?  Yes  No

If yes, what are they? A 50% local match is required. Total project budget is \$120,000 (50% local match = \$60,000; state grant request is \$60,000).

What is the number of FTE funded through the grant? 0

What are the preliminary job classifications?

Please add any additional information or comments here:

# Grant Application Summary Form

## Grant Program Information

**Brief narrative of program to be provided using grant funds:** \_\_\_\_\_

Grant Funds will be used to develop a Flood and Drainage Study for the Village of Waterford to identify flooding issues and identify possible solutions on how to address these issues.

**Is this grant an expansion of an existing program?**  Yes  No

If yes, what cost center(s) are associated? \_\_\_\_\_

**If this is a new grant, identify the program code/user code where the new cost center will be setup.**

C02500

**How does this program fit in the context of your department's management plan?** \_\_\_\_\_

This grant will help fulfill the goal of the CTP which is to provide a safe, affordable, convenient, efficient and environmentally sound multi-modal transportation system to serve Loudoun County.

**Is this (or a similar) program provided by any other County or school department?**  Yes  No

If yes, by who? City of Fairfax

**Please add any additional information or comments here:** \_\_\_\_\_

## Impact on and Need for Resources

**How will the grant program manager's workload be affected by this grant?** \_\_\_\_\_

This grant will be managed by the DTCI Special Projects Manager and Asst. Design Program Manager and is anticipated to encumber approximately 15% of those FTE's time.

**What staff in other departments will be needed to implement or support this program?** B&D, F&P \_\_\_\_\_

Have you contacted those departments to discuss this grant?  Yes  No

**Does the grant involve the receipt or purchase of equipment and/or will any new office space, office space reconfiguration, or office furniture/equipment be required (include phones/phone lines, computer hardware/software, use of county vehicle)?**  Yes  No

If yes, describe: \_\_\_\_\_

**As a result of the grant, will new staff be hired?**  Yes  No

If yes, what new or additional office equipment or furniture is needed? (Include phones, email address, computer hardware/software, reconfiguring of existing computer hardware, etc.) \_\_\_\_\_

**Will any computer hardware or software be supplied through the grant?**  Yes  No

If yes, will the hardware/software be updated/replaced (using grant funds) as needed or required?  Yes  No

**Please add any additional information or comments here:** \_\_\_\_\_

# Grant Application Summary Form

**Do not write in this space**

**Budget Analyst Recommendation:**  Approve  Disapprove

**Budget Analyst Comments:** \_\_\_\_\_

**Budget Analyst Signature:** Sarah Sade Digitally signed by Sarah Sade  
Date: 2023.10.27 15:03:38 -0400 **Date:** 10 / 27 / 2023

**Grants Coordinator Recommendation:**  Approve  Disapprove

**Grants Coordinator Comments:** \_\_\_\_\_

**Grants Coordinator Signature:** Barbara Lawrence \_\_\_\_\_

**County Administrator (or designee) Decision:**  Approve  Disapprove

**County Administrator (or designee) Signature:** \_\_\_\_\_ **Date:** 11 / 06 / 2023

## Section 4-1500

## FOD - Floodplain Overlay District

### 4-1501

**Purpose and Intent.** The purpose of these provisions is to conserve the natural state of watercourses and watersheds and to prevent: the loss of life and property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by (1) regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies; (2) restricting or prohibiting certain uses, activities, and development from locating within areas subject to flooding; (3) requiring all those uses, activities, and developments that do occur in areas susceptible to flooding to be protected and/or flood-proofed against flooding and flood damage; and ; (4) preventing individuals from using land and erecting structures which are unsuited for intended purposes because of flood hazards. These provisions shall apply to all privately and publicly owned lands within the jurisdiction of the County of Loudoun and identified as being located within the Floodplain Overlay District (FOD). Only those uses set forth in Section 4-1505 and 4-1506 shall be permitted or special exception uses within the FOD, and land so encumbered may be used in a manner permitted in the underlying zoning district only if and to the extent such use is also permitted in the FOD.

The degree of flood protection sought by Section 4-1500 is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. Section 4-1500 does not imply that property outside the FOD or land uses permitted within the FOD will be free from flooding or flood damages. Section 4-1500 shall not create liability on the part of Loudoun County or any officer or employee thereof for any flood damages that result from reliance on Section 4-1500 or any administrative decision lawfully made thereunder.

### 4-1502

**Authority.** Authority for these provisions includes:

- (A) Flood Damage Reduction Act, Va. Code Sections 10.1-600 et seq.
- (B) Va. Code Sections 15.2-2200 through 15.2-2329 (Planning, Subdivision of Land and Zoning).
- (C) Soil Conservation Districts Law, Va. Code Sections 10.1-500 et seq.
- (D) Erosion and Sediment Control Law, Va. Code Section 62.1-44.15:51 et seq.
- (E) Potomac River Basin Compact, Va. Code Section 28.2-1001.
- (F) National Flood Insurance Act of 1968, 42 U.S.C. 4001 et seq., as amended by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004.

(G) Code of Federal Regulations, Title 44, Section 59.1-70.9

**4-1503**

**Definitions.** The words and phrases defined in this subsection shall have the following meanings when used in Section 4-1500.

- (A) **Alteration.** A development action which will change the cross section of the floodplain and will increase either the erosive velocity or height of floodwaters either on-site or off-site. Alterations include, but are not limited to, land disturbing activities.
- (B) **Base Flood.** The flood having a one percent (1%) chance of being equaled or exceeded in any given year. Also known as the 100-year flood.
- (C) **Base flood elevation.** The water surface elevations of the base flood. The water surface elevation of the base flood is calculated based on the datum specified on Loudoun County's Flood Insurance Rate Map.
- (D) **Basement.** That portion of a building having its floor below ground level on all sides.
- (E) **Conditional Letter of Map Revision (CLOMR).** A formal review and written comment from FEMA on a proposed project that would, upon construction, cause an increase in base flood elevation. Upon completion of the construction of such project, a Letter of Map Revision (LOMR) issued by FEMA, determining that the increase was warranted, shall be required.
- (F) **Cross section.** Shape and dimensions of a channel and valley of the floodplain perpendicular to the line of flow.
- (G) **Development.** Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.
- (H) **Elevated building.** A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).
- (I) **Flood or Flooding.**
  - (1) A general or temporary condition of partial or complete inundation of normally dry land areas from:
    - (a) the overflow of inland waters; or,
    - (b) the unusual and rapid accumulation or runoff of surface waters from any source.
    - (c) mudflows which are proximately caused by flooding as defined in paragraph (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of

normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

- (2) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as a flash flood, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1(a) of this definition.
- (J) **Flood Insurance Rate Map (FIRM).** The official map of Loudoun County on which the Federal Emergency Management Agency (FEMA) has delineated areas in the floodplain subject to inundation of the base flood and the risk premium zones based on the technical data in the Flood Insurance Study. The FIRM that has been made available digitally is called the Digital Flood Insurance Rate Map (DFIRM).
- (K) **Flood Insurance Study (FIS).** A report by FEMA that examines, evaluates and determines flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudflow and/or flood-related erosion hazards.
- (L) **Floodplain.** Any land area susceptible to being inundated by water from the base flood and having a drainage area greater than one hundred (100) acres. For purposes of regulation under this Ordinance, a distinction is made between the Major Floodplain and Minor Floodplain. Major floodplain shall correspond to Zones AE and A as shown on the FIRM, as may be subsequently revised or amended by FEMA, and is considered to be the Special Flood Hazard Area by FEMA. All watersheds draining greater than 640 acres shall be considered Major Floodplain. Minor Floodplain shall correspond to watersheds of 640 acres or less that are not designated as Zone AE or A.
- (M) **Floodproofing.** Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.
- (N) **Floodway.** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without any cumulative increase the base flood elevation. Floodways are included within, and regulated as, FOD (Major Floodplain). Floodways are not shown on the FIRM but are included within the Special Flood Hazard Area designated on the FIRM, which is regulated as FOD (Major Floodplain).
- (O) **Freeboard.** A factor of safety expressed in feet above a flood level for purposes of floodplain management. “Freeboard” compensates for the many unknown factors that contribute to flood heights greater than the

height calculated for Base Flood, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

- (P) **Historic structure.** Any structure that is:
- (1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
  - (2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
  - (3) Individually listed on the Virginia Landmarks Register; or,
  - (4) Individually listed on the Loudoun County Register of Heritage Resources.
- (Q) **Lowest floor.** The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Code of Federal Regulations 44CFR §60.3.
- (R) **Manufactured Home.** A structure constructed and subject to federal regulation, which is transportable in one or more sections; is built on a permanent chassis; is designed to be used as a single-family dwelling, with or without a permanent foundation, when connected to utilities. The term "manufactured home" also includes recreational vehicles placed on a site for greater than 180 consecutive days whether connected to utilities or not.
- (S) **New construction.** Structures for which the start of construction commenced on or after January 5, 1978. All such structures shall comply with the Loudoun County regulations in effect at the time of construction. Any improvement(s) to a structure shall comply with the Loudoun County regulations in effect at the time of construction of the improvement(s).
- (T) **Recreational Vehicle.** A vehicle which is
- (1) built on a single chassis;
  - (2) 400 square feet or less when measured at the largest horizontal projection;
  - (3) designed to be self-propelled or permanently towable by a light duty truck; and

- (4) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational camping, travel, or seasonal use.
- (U) **Road, Crossing of the Floodplain or Road Crossing.** Any public road, private road or driveway traversing a floodplain generally perpendicular to the flow of the drainageway.
- (V) **Special Flood Hazard Area (SFHA).** The land in the floodplain subject to a one (1%) percent or greater chance of being flooded in any given year. This area corresponds to where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and includes Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V as shown on the FIRM.
- (W) **Start of construction.** Means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.
- (X) **Stormwater Management Improvements.** Surface or subsurface drainage improvements, storm sewers, detention and retention ponds and other such improvements as required by the Facilities Standards Manual (FSM), the Loudoun County Stormwater Management Ordinance, Chapter 1096 of the Codified Ordinances of Loudoun County, or the Loudoun County Erosion and Sediment Control Ordinance and Plan, Chapter 1220 of the Codified Ordinances of Loudoun County.
- (Y) **Stream Corridor.** Includes the stream and extends in cross section from the channel's bankfull level towards the upland (perpendicular to the direction of streamflow) to a point on the landscape where channel-related surface and/or soil moisture no longer influence the plant community.
- (Z) **Stream Restoration.** Converting an unstable, altered, or degraded stream corridor, including adjacent riparian area and flood-prone areas, to its natural stable condition considering recent and future watershed conditions.



- (AA) **Structure.** An assembly of materials forming a construction for occupancy or use including, among others, buildings, stadiums, gospel and circus tents, platforms, stagings, observation towers, telecommunications towers, radio and TV broadcasting towers, water tanks, trestles, piers, open sheds, coal bins, shelters, walls, power line towers, pipelines, railroad tracks, manufactured homes, and gas or liquid storage tanks that are principally above ground.
- (BB) **Substantial damage.** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred.
- (CC) **Substantial improvement.** Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred flood related damages on two (2) occasions in which the cost of the repair on the average equaled or exceeded twenty-five percent (25%) of the market value of the structure at the time of each such flood event or substantial damage regardless of the actual repair work performed. The term does not, however, include either:
- (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
  - (2) Any altering, repair or rehabilitation of a historic structure, provided that the altering, repair or rehabilitation will not preclude the structure's continued designation as a historic structure. Historic structures undergoing altering, repair or rehabilitation that would constitute a substantial improvement as defined above, must comply with all requirements of Section 4-1500 that do not preclude the structure's continued designation as a historic structure. Documentation that a specific requirement of Section 4-1500 will cause removal of the structure from the National Register of Historic Places or the Virginia Landmarks Register must be obtained from the Secretary of the Interior or the State Historic Preservation Officer. Any exemption from the requirements of Section 4-1500 will be the minimum necessary to preserve the historic character and design of the structure.
- (DD) **Utility Lines in the Floodplain.** Storm sewers, sanitary sewers, water lines and similar lines running generally parallel and perpendicular to the flow of the drainageway; and other public utility lines traversing a floodplain generally perpendicular to the flow of the drainageway.
- (EE) **Violation.** The failure of a structure or other development to be fully compliant with this Section 4-1500. A structure or other development

without a FEMA approved Elevation Certificate, other certifications, or other evidence of compliance required in this Section 4-1500 shall be presumed to be in violation until such time as that documentation is provided.

- (FF) **Watercourse.** A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial damage resulting from flooding may occur.

**4-1504 Administration.**

- (A) **Designation of Floodplain Administrator.** The Zoning Administrator, or his/her designee, shall administer and implement these regulations and is referred to herein as the Floodplain Administrator.
- (B) **Duties and Responsibilities of the Floodplain Administrator.** The Floodplain Administrator shall:
- (1) Review all applications for development located within the FOD.
  - (2) Interpret FOD boundaries in accordance with Section 6-407 and provide available base flood elevation and flood hazard information.
  - (3) Review applications for development to determine whether proposed activities will be reasonably safe from flooding and meet the requirements of Section 4-1500.
  - (4) Review applications for reconstruction, rehabilitation, addition or other improvement of a structure to determine whether such proposed activities constitute substantial improvements.
  - (5) Review applications for development to determine whether all necessary permits have been obtained from the Federal, State or local agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair, or altering of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any altering of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the State.
  - (6) Verify that applicants proposing to alter a watercourse have notified affected adjacent towns, cities, county or state government, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies (Virginia Department of Environmental Quality, United States Army Corps of Engineers) and have submitted copies of such notifications to FEMA.

- (7) Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with Section 4-1500 or to determine if non-compliance has occurred or violations have been committed.
- (8) Review submitted FEMA Elevation Certificate applications and require incomplete or deficient applications to be corrected.
- (9) Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including Floodplain Studies and Floodplain Alterations approved in accordance with the FSM, within six (6) months after such data and information becomes available if the analyses indicate changes in base flood elevations.
- (10) Maintain and permanently retain records that are necessary for the administration of the FOD, including:
  - (a) Flood Insurance Studies, Flood Insurance Rate Maps (including historic studies and maps and current effective studies and maps), and Letters of Map Change; and
  - (b) Documentation supporting approval or denial of development permits, Elevation Certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, other required design certifications, variations pursuant to Section 4-1511, and records of enforcement actions taken to correct violations of these regulations.
- (11) Enforce the provisions of these regulations, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.
- (12) Advise the Board of Supervisors regarding the intent of these regulations and, for each application for a variation pursuant to Section 4-1511, prepare a staff report and recommendation.
- (13) Administer the requirements related to proposed work on existing buildings:
  - (a) Make determinations as to whether buildings and structures that are located in FOD (Major Floodplain only) and that are damaged by any cause have been substantially damaged.
  - (b) Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct such damaged structures; and prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective

measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

- (14) Undertake, as determined appropriate by the Floodplain Administrator due to the circumstances, other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to development permit requests and repair of damaged structures; coordinating with other Federal, State, and local agencies to assist with substantial damage determinations; providing owners of damaged structures information related to the proper repair of damaged structures in FOD; and provide property owners with information necessary to file claims for Increased Cost of Compliance coverage under the National Flood Insurance Program (NFIP) flood insurance policies.
  - (15) Notify FEMA when the corporate boundaries of the County have been modified and:
    - (a) Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to Section 4-1500 has either been assumed or relinquished through annexation or otherwise; and
    - (b) For any new area for which the authority to regulate pursuant to this Section 4-1500 has been assumed, prepare necessary amendments to the Zoning Map and appropriate requirements, and submit such amendments to the Board of Supervisors for adoption. A copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.
  - (16) Upon the request of FEMA, complete and submit information regarding the number of buildings in the FOD (Major Floodplain only), number of approved permits for development in the FOD (Major Floodplain only), number of approved variations pursuant to Section 4-1511. Any variations that are approved shall be noted in the annual or biennial report submitted to FEMA's Federal Insurance Administrator.
  - (17) Serve as a referral agent on all legislative land development applications.
- (C) **Delineation of the FOD.** The original basis for the delineation of the FOD shall be the floodplain as shown on the Flood Insurance Study (FIS) and the Flood Insurance Rate Map (FIRM) for the County of Loudoun prepared by FEMA, Federal Insurance Administration, dated February 17, 2017. The boundaries of the floodplain and FOD may change based on

information submitted in accordance with this Chapter, and/or subsequent revisions or amendments to the FIS and FIRM approved by FEMA.

**4-1505**

**Permitted Uses.** The following uses shall be permitted within the FOD provided such uses conform with Section 5-1000. Uses allowed in the underlying district shall be prohibited to the extent such uses are not permitted, or special exception uses in the FOD. Where any uses, structures or improvements will result in development within the FOD, an application for a Floodplain Alteration shall be submitted in accordance with Section 4-1508(B) and the FSM.

- (A) Permitted uses in FOD (Major Floodplain). Such uses shall not cause any increases in base flood elevation of the FOD (Major Floodplain) unless otherwise provided below.
  - (1) Agriculture, horticulture, forestry, and fisheries, not requiring the erection of structures, except that incidental structures shall be permitted in accordance with this Section. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
  - (2) Passive and Active Recreation Uses, except swimming pools, provided that the area of impervious surfaces within the FOD (Major Floodplain) does not exceed three percent (3%) of the area of FOD (Major Floodplain) located within the subject parcel and the boundary of the FOD (Major Floodplain) does not change.
  - (3) Stormwater management improvements as follows:
    - (a) Rooftop disconnection. Associated soil amendments shall be located outside of areas of existing tree cover and shall not require the clearing of existing tree cover.
    - (b) Sheet flow to conservation area.
    - (c) Sheet flow to vegetated filter and associated soil amendments located outside of areas of existing tree cover and not requiring the clearing of existing tree cover.
    - (d) Grass channel and associated soil amendments.
    - (e) Soil amendments located outside of areas of existing tree cover and not requiring the clearing of existing tree cover.
    - (f) Other stormwater management improvements provided that such improvements shall only serve permitted or approved special exception uses in the FOD, and shall only serve those portions of such uses that are located within the FOD.
  - (4) Utility lines in the floodplain and road crossings. An increase in base flood elevation on site may be permitted provided a CLOMR is

obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use. Road crossings shall be designed and constructed in accordance with the standards and regulations of the Virginia Department of Transportation (VDOT) and/or the FSM, whichever shall apply.

- (5) Public roads shown on the Comprehensive Plan or included in a Capital Improvement Program project. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
- (6) Public roads, private roads, and driveways.
- (7) Repair, reconstruction or improvement of existing residences, so long as the footprint of the existing residence is not increased within the FOD and provided that such repair, reconstruction or improvement, whether located within or outside of the FOD, is not a substantial improvement. If such repair, reconstruction or improvement is a substantial improvement then conformance with Section 4-1509 shall be required.
- (8) Parking areas accessory to permitted or approved special exception uses in the FOD. All such parking areas shall be equipped with best management practices in accordance with Chapter 5 of the FSM and Chapter 1096 of the Codified Ordinances.
- (9) Incidental structures, not exceeding 840 square feet of floor area, associated with permitted or approved special exception uses in the FOD, and temporary structures associated with Special Events in the FOD. Incidental structures include storage sheds, maintenance sheds, backstops, bath houses and locker rooms. Provided, however, bulk storage of gasoline, chemicals, fuels or similar substances are prohibited in the FOD; and further provided that any new construction shall comply with applicable FEMA standards.
- (10) Temporary storage of material or equipment necessary in the construction of permitted or special exception uses in the FOD.
- (11) Alterations of the floodplain associated with any permitted or approved special exception uses in the FOD. Such alterations shall not relocate or alter the natural active channel except for road crossings permitted under Section 4-1505(A)(4) or Section 4-1505(A)(13), to protect existing habitable structures subject to periodic flooding, or for stream restoration permitted under Section 4-1505(A)(16). Applications for alterations of the floodplain shall be in accordance with Section 4-1508(B). To the extent that the boundaries of the FOD change as a result of an approved Floodplain Alteration, any areas no longer within the FOD may be used for any use in the underlying zoning district,

subject to the provisions of the applicable zoning district regulations and conditions of any approved special exception.

- (12) Restoration and rehabilitation of historic structures.
- (13) Road crossings that result in an increase in the base flood elevation off-site provided that:
  - (a) A CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
  - (b) The road crossing shall be a feature shown on the Comprehensive Plan or included in a Capital Improvements Program project.
  - (c) The road crossing shall be designed and constructed in accordance with the standards and regulations of the Virginia Department of Transportation and/or the FSM, whichever shall apply.
  - (d) The resulting increase in the base flood elevation shall not affect existing buildings and structures.
  - (e) Affected off-site property owners may at any time mitigate impacts on their land as a result of an increase in the base flood elevation by:
    - (i) Submitting a Floodplain Alteration to reclaim that portion of their land subject to the increase in base flood elevation as a result of the road crossing, provided there is no increase in the base flood elevation; and/or
    - (ii) Requesting a modification of the building setback or parking setback requirements on specific lots or parcels of land affected by the increase in the base flood elevation by special exception approved by the Board of Supervisors, in accordance with Section 6-1300 and 4-1507 of the Zoning Ordinance.
- (14) Public water utility drinking water supply reservoirs, including, without limitation, reclaimed quarries.
- (15) Maintenance of the design conditions of an approved Floodplain Alteration.
- (16) Stream Restoration designed in accordance with the FSM and approved by the County. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.

- (17) Wetland Mitigation. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
  - (18) Flood mitigation practices carried out in order to minimize and reduce flood risk in accordance with the Code of Federal Regulations, Title 44, Section 78.1, et seq.
  - (19) Special Events, pursuant to 5-500(C), without land disturbing activity.
- (B) Permitted uses in floodplains in FOD (Minor Floodplain), with or without an increase in base flood elevation:
- (1) Uses allowed under Section 4-1505(A), except that increases in the base flood elevation in the FOD (Minor Floodplain) shall be permitted.
  - (2) Alteration of the floodplain whether or not associated with a permitted or approved special exception use in the FOD. To the extent that the boundaries of the FOD change as a result of the Floodplain Alteration, any areas no longer within the FOD may be used for any use in the underlying zoning district, subject to the provisions of the applicable zoning district regulations and conditions of any approved special exception.
  - (3) Stormwater management improvements whether or not associated with permitted or approved special exception uses in the FOD.
  - (4) Ponds designed by the Natural Resources Conservation Service, a Licensed Professional Engineer, or a Class B Land Surveyor.
  - (5) Basketball or tennis courts, and swimming pools.
  - (6) Parking areas less than 5,000 square feet not otherwise permitted. Such parking areas shall not be subject to 100-year flooding greater than one (1) foot in depth, shall be equipped with best management practices in accordance with Chapter 5 of the FSM and Chapter 1096 of the Codified Ordinances, and shall not result in any change in existing grade.

**4-1506**

**Special Exception Uses.** The following uses and structures may be permitted in the FOD (Major Floodplain or Minor Floodplain) by the Board of Supervisors by special exception, subject to Section 6-1300 and Section 4-1507, provided that such uses conform with Section 5-1000 and such uses shall not cause any increase in the base flood elevation of the FOD (Major Floodplain) unless otherwise provided below. Uses allowed in the underlying district shall be prohibited to the extent such uses are not permitted or special exception uses in the FOD. Where any uses, structures or improvements will result in development within the FOD,



an application for a Floodplain Alteration shall be submitted in accordance with Section 4-1508(B) and the FSM.

- (A) Marinas, boat rentals, docks, piers, wharves, water ski jump facilities.
- (B) Special Events, pursuant to 5-500(C), with land disturbing activity.
- (C) Riding stables.
- (D) Structures required for the operation of a public utility not otherwise permitted by this Ordinance.
- (E) Incidental structures, greater than 840 square feet of floor area, associated with permitted or approved special exception uses in the FOD. Incidental structures include storage sheds, maintenance sheds, backstops, bath houses and locker rooms. Provided, however, bulk storage of gasoline, chemicals, fuels or similar substances are prohibited in the FOD; and further provided that any new construction shall comply with applicable FEMA standards.
- (F) Passive and Active Recreation Uses, except swimming pools, provided that the area of impervious surfaces within the FOD (Major Floodplain) does not exceed ten percent (10%) of the area of FOD (Major Floodplain) located within the subject parcel, that cause the boundary of the FOD (Major Floodplain) to change, and/or that cause an increase in base flood elevation. Such increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.

**4-1507**

**Standards For A Special Exception.** In considering applications for a special exception, the Board of Supervisors shall be satisfied that the following standards and those of Section 6-1300 have been met:

- (A) The proposed use will not increase the danger to life and property due to increased flood heights or velocities.
- (B) The proposed use will not increase the danger that materials may be swept downstream to the injury of others.
- (C) The proposed water supply and sanitation systems are designed to prevent disease, contamination, and unsanitary conditions.
- (D) The proposed use or structure shall be located and designed to limit its susceptibility to flood damage, and available alternative locations, not subject to flooding, for the proposed use shall be considered.
- (E) The proposed use is compatible with existing and planned development.
- (F) The proposed use is in harmony with the Comprehensive Plan.

- (G) The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters expected at the site shall not cause significant damage.

**4-1508 Floodplain Overlay District Development Procedures.**

- (A) **Floodplain Information to be Submitted with Land Development Applications.** All new subdivision proposals and other proposed development greater than fifty (50) lots or five (5) acres, whichever is the lesser, on any parcel of land which includes FOD within its boundaries, shall include with such proposals base flood elevation data in accordance with Chapter 5 of the FSM. The submission of such base flood elevation data shall be considered a request for a cartographic interpretation pursuant to Section 6-407, to interpret the exact location of the boundaries of the FOD based on such data.
- (B) **Floodplain Alteration.** Any proposed development in the FOD shall require approval of a Declaration of No Impact to Floodplain or Floodplain Alteration in accordance with Chapter 5 of the FSM. Any required Floodplain Alteration shall conform with the following:
  - (1) **Procedures for Floodplain Alterations.** Applications for Floodplain Alterations shall be in accordance with Chapters 5 and 8 of the FSM and conform with the following procedures:
    - (a) An approved CLOMR from FEMA shall be provided prior to approval of a Floodplain Alteration that proposes any increase in the base flood elevation within the FOD (Major Floodplain).
    - (b) Floodplain Alterations that would result in changes to the boundaries of the FOD shall be subject to the following:
      - (i) The application for such Floodplain Alteration shall be considered a request for a cartographic interpretation pursuant to Section 6-407 to interpret the exact location of the boundaries of the FOD upon approval of the Floodplain Alteration.
      - (ii) Prior to approval of a Floodplain Alteration that would result in any increase in the base flood elevation off-site or other changes to the boundaries of the FOD off-site, an instrument describing the change in the base flood elevation executed by each affected property owner shall be recorded among the land records of Loudoun County, Virginia.
  - (2) **Engineering and Environmental Criteria for Floodplain Alterations.** All proposed alterations to the floodplain shall meet the following criteria:

- (a) Alterations to the floodplain shall not create erosive water velocity on-site or off-site (where erosive water velocity is based on analysis of the surface material and permissible velocities for specific cross sections affected by the proposed alteration,), and the mean velocity of stream flow at the downstream end of the site after alteration shall be no greater than the mean velocity of the stream flow under existing conditions.
  - (b) Alterations to the floodplain shall be in conformance with Chapter 1220 of the Codified Ordinances of Loudoun County and the Erosion and Sediment Control Law, Va. Code Section 62.1-44.15:51 et seq.
  - (c) The flood carrying capacity within the altered floodplain shall be maintained.
- (C) **Zoning Permit Required.** All development occurring within the FOD (Major Floodplain), including placement of manufactured homes, shall be undertaken only upon the approval of a zoning permit. The following provisions shall apply to all such zoning permits:
- (1) In addition to the requirements of Section 6-1001, the application for such zoning permit shall include the following:
    - (a) Copies of all necessary permits from Federal, State, or local agencies from which prior or concurrent approval is required.
    - (b) The base flood elevation.
    - (c) The elevation of the lowest floor (including basement).
    - (d) For a structure to be flood-proofed (non-residential only), the elevation to which the structure will be flood-proofed.
    - (e) Topographic information showing existing and proposed ground elevations.

**4-1509 Floodplain Overlay District Development Standards:**

- (A) **General Development Standards.** The following provisions shall apply to development located in the FOD (Major Floodplain):
- (1) Residential Construction. New construction or substantial improvement of any residential structure (including manufactured homes) shall have the lowest floor, including basement, elevated to or above (one (1) foot freeboard recommended) the base flood elevation.
  - (2) Non-Residential Construction. New construction or substantial improvement of any commercial, industrial, or non-residential building (including manufactured homes) shall have the lowest floor, including basement, elevated to or above the base flood

elevation. Non-residential buildings may be flood-proofed in lieu of being elevated provided that all areas of the building components lower than one (1) foot above the base flood elevation are water tight with walls impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A licensed professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the base flood elevation to which such structures are floodproofed, shall be retained by Floodplain Administrator.

- (3) All new construction and substantial improvements (including manufactured homes) shall be in accordance with all applicable sections of this Ordinance, the FSM, and Chapter 1410 of the Codified Ordinances, and anchored to prevent flotation, collapse or lateral movement of the structure.
- (4) Newly placed manufactured homes and/or substantial improvements to manufactured homes shall meet all applicable State anchoring requirements for resisting wind forces and shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors.
- (5) All new construction and substantial improvements (including manufactured homes) shall be constructed with materials and utility equipment resistant to flood damage.
- (6) All new construction or substantial improvements (including manufactured homes) shall be constructed by methods and practices that minimize flood damage.
- (7) 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.
- (8) New and replacement public and individual water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- (9) New and replacement public sewer systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
- (10) Individual sewage disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

- (11) Prior to the approval of a Floodplain Alteration for any proposed alteration or relocation of any channel or watercourse, all required permits shall be obtained from the U. S. Army 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 agencies). The applicant shall provide notification of such alteration or relocation to the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA. If such alteration or relocation results in a change to the floodplain in an adjacent town, city, county, or state, notification shall also be provided by the applicant to such jurisdiction.
  - (12) The flood carrying capacity within an altered or relocated portion of any channel or watercourse shall be maintained. Under no circumstances shall any development adversely affect the water carrying capacity of any channel or watercourse.
- (B) **Space Below the Lowest Floor.** In FOD (Major Floodplain), fully enclosed areas, of new construction or substantially improved structures, which are below the base flood elevation shall meet the following minimum standards:
- (1) Such areas shall not be designed or used for human habitation. Such areas shall only be used for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to such areas shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).
  - (2) Such areas shall be constructed entirely of flood resistant materials below the base flood elevation.
  - (3) Such areas shall include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters that are either certified by a licensed professional engineer or architect or that meet the following minimum design criteria:
    - (a) Provide a minimum of two (2) openings on different sides of each enclosed area. Foundation enclosures made of flexible skirting are not considered enclosed areas for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, are considered as enclosed areas and require such openings.
    - (b) The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding.

- (c) If a building has more than one (1) enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.
- (d) The bottom of all required openings to such enclosed areas shall be no higher than one (1) foot above the adjacent grade.
- (e) Openings shall only be equipped with screens, louvers, or other opening coverings or devices that permit the automatic flow of floodwaters in both directions.

(C) **Standards for Recreational Vehicles.** The following provisions shall apply to recreational vehicles located within the FOD (Major Floodplain):

- (1) Any recreational vehicles placed on a site shall be fully licensed, on its wheels or jacking system, and attached to the site only by quick disconnect type utilities and security devices, and shall have no permanently attached additions; or
- (2) Recreational vehicles placed on a site for 180 days or longer shall be deemed to be manufactured homes and shall meet all development standards of Section 4-1509(A) and 4-1509(B).

(D) **Standards for Subdivision Proposals.** The following provisions shall be required for any subdivision of a parcel that includes FOD (Major Floodplain):

- (1) All subdivision proposals shall be consistent with the need to minimize flood damage.
- (2) All subdivision proposals that have public utilities and facilities, such as sewer, gas, electrical and water systems, shall have such utilities and facilities located and constructed to minimize flood damage.
- (3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.

**4-1510 Density Calculations.** For purposes of calculating the permitted floor area and number of residential units in the underlying zoning district, the land area in any portion of the FOD shall be included as part of the land area for such calculations.

**4-1511 Variations.**

(A) **Authority.** Pursuant to Code of Federal Regulations 44CFR60.6, the Board of Supervisors may approve a variation of the standards of Sections 4-1509(A), (B), and (C) for any proposed development within the FOD (Major Floodplain) in the instances as set forth below. Requests for approval of a variation of the standards of Sections 4-1509(A), (B), and (C) shall be made in accordance with the procedures for a Minor Special Exception application as set forth in Section 6-1300, except that the issues

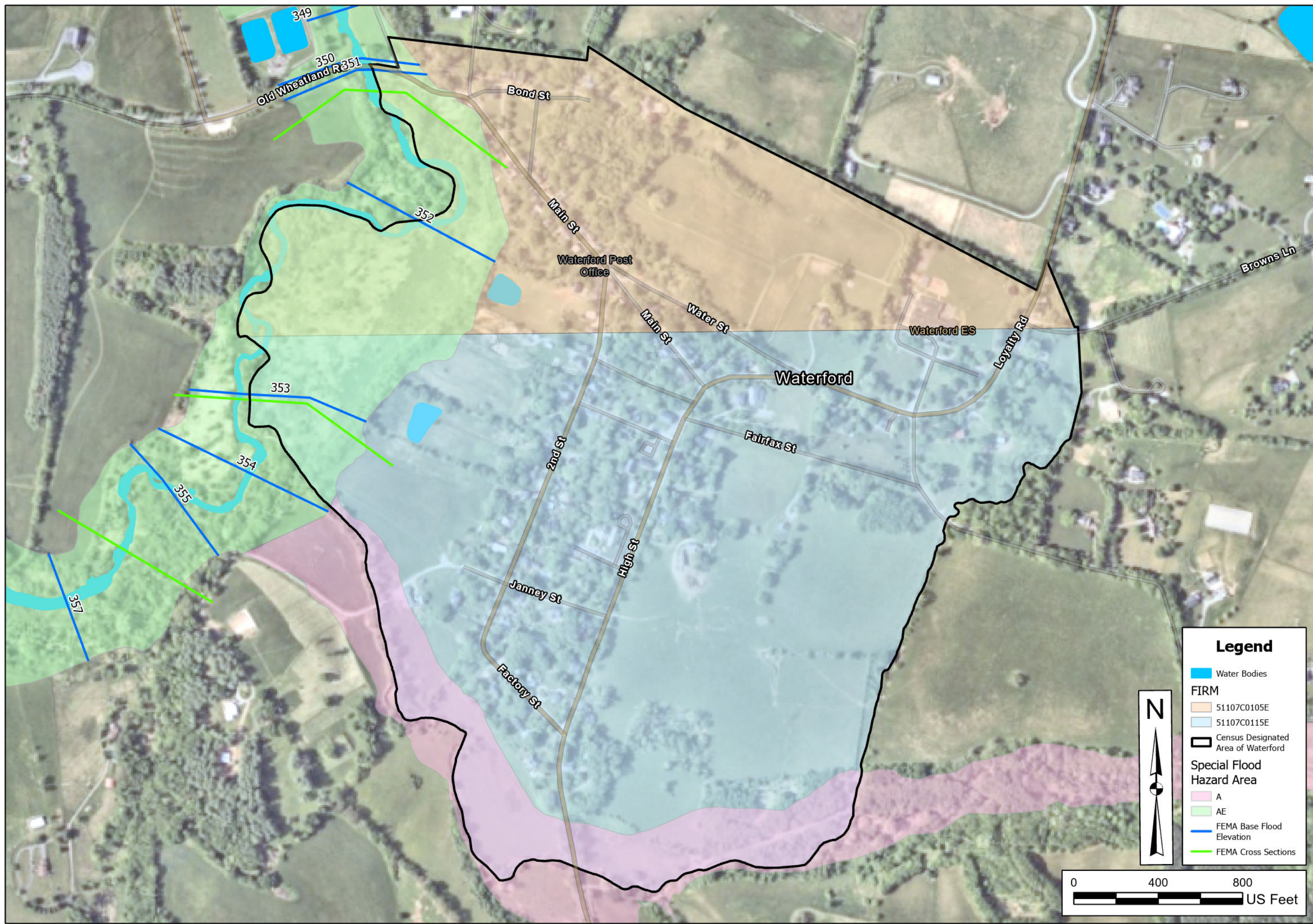
for consideration shall be as set forth in Section 4-1511(B). No variation shall be approved for any proposed development within the FOD (Major Floodplain) that will cause any increase in the base flood elevation of the FOD (Major Floodplain).

- (1) New construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood elevation provided that such new construction or substantial improvement is protected by methods that minimize flood damages during the base flood and creates no additional threats to public safety.
  - (2) Repair or rehabilitation of historic structures provided that such repair or rehabilitation shall not preclude the structure's continued designation as a historic structure and the variation is the minimum necessary to preserve the historic character and design of the structure.
- (B) **Application for a Variation of the Standards of Sections 4-1509(A), (B), and (C).** Any person owning property, or having a possessory or contract interest in property and the consent of the owner, may file an application for variation of the standards of Sections 4-1509(A), (B), and (C) in regard to such property with the Floodplain Administrator. The application shall contain the following information and such additional information as required by Section 6-403:
- (1) The particular standards of Sections 4-1509(A), (B), and (C) that prevent the proposed construction on, or use of, the property.
  - (2) The existing zoning of the property, including any previously approved modifications, conditions, or proffers.
  - (3) The special conditions, circumstances or characteristics of the land, building or structure that prevent the use of the land in compliance with the standards of Sections 4-1509(A), (B), and (C).
  - (4) The particular hardship that would result if the specified standards of Sections 4-1509(A), (B), and (C) were to be applied to the property.
  - (5) The extent to which it would be necessary to vary the standards of Sections 4-1509(A), (B), and (C) in order to permit the proposed construction on, or use of, the property.
  - (6) An explanation of how the requested variation conforms to each of the applicable standards set out in Section 4-1511(D).
- (C) **Issues for Consideration.** In considering an application for a variation of the standards of Sections 4-1509(A), (B), and (C), the following factors shall be given reasonable consideration:

- (1) The danger to life and property due to increased flood heights or velocities caused by encroachments.
  - (2) The danger that materials may be swept on to other lands or downstream to the injury of others.
  - (3) The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.
  - (4) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.
  - (5) The importance of the services provided by the proposed facility to the community.
  - (6) The requirements of the facility for a waterfront location.
  - (7) The availability of alternative locations not subject to flooding for the proposed use.
  - (8) The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
  - (9) The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
  - (10) The safety of access by ordinary and emergency vehicles to the property in time of flood.
  - (11) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.
  - (12) The historic nature of a structure.
  - (13) Such other factors which are relevant to the purposes of this ordinance.
- (D) **Decision on Application for Variation of the Standards of Sections 4-1509(A), (B), and (C).** No such variation of the standards of Sections 4-1509(A), (B), and (C) shall be approved by the Board of Supervisors unless all of the following findings are made:
- (1) The applicant has demonstrated good and sufficient cause.
  - (2) Failure to grant the variation of the standards of Sections 4-1509(A), (B), and (C) would result in exceptional hardship to the applicant.
  - (3) Granting of such variation of the standards of Sections 4-1509(A), (B), and (C) will not result in:



- (a) any increase in base flood elevation of the FOD (Major Floodplain);
  - (b) additional threats to public safety;
  - (c) extraordinary public expense;
  - (d) the creation of nuisances;
  - (e) fraud or victimization of the public; or
  - (f) conflicts with other local laws or ordinances.
- (4) The variation of the standards of Sections 4-1509(A), (B), and (C) is the minimum required to provide relief.
- (E) **Notice of Approval.** Upon approval of a variation of the standards of Sections 4-1509(A), (B), and (C), the Floodplain Administrator shall notify the applicant of such approval, in writing, and that development in accordance with the approved variation may increase the risks to life and property and may result in increased premium rates for flood insurance.



<b>DATE</b>	11/2/2023
<b>DRAWN BY</b>	MNP
<b>CHECKED BY</b>	JJD

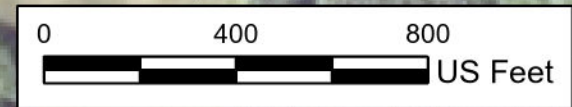
**VILLAGE OF WATERFORD  
 FEMA FLOOD PLAIN MAP**

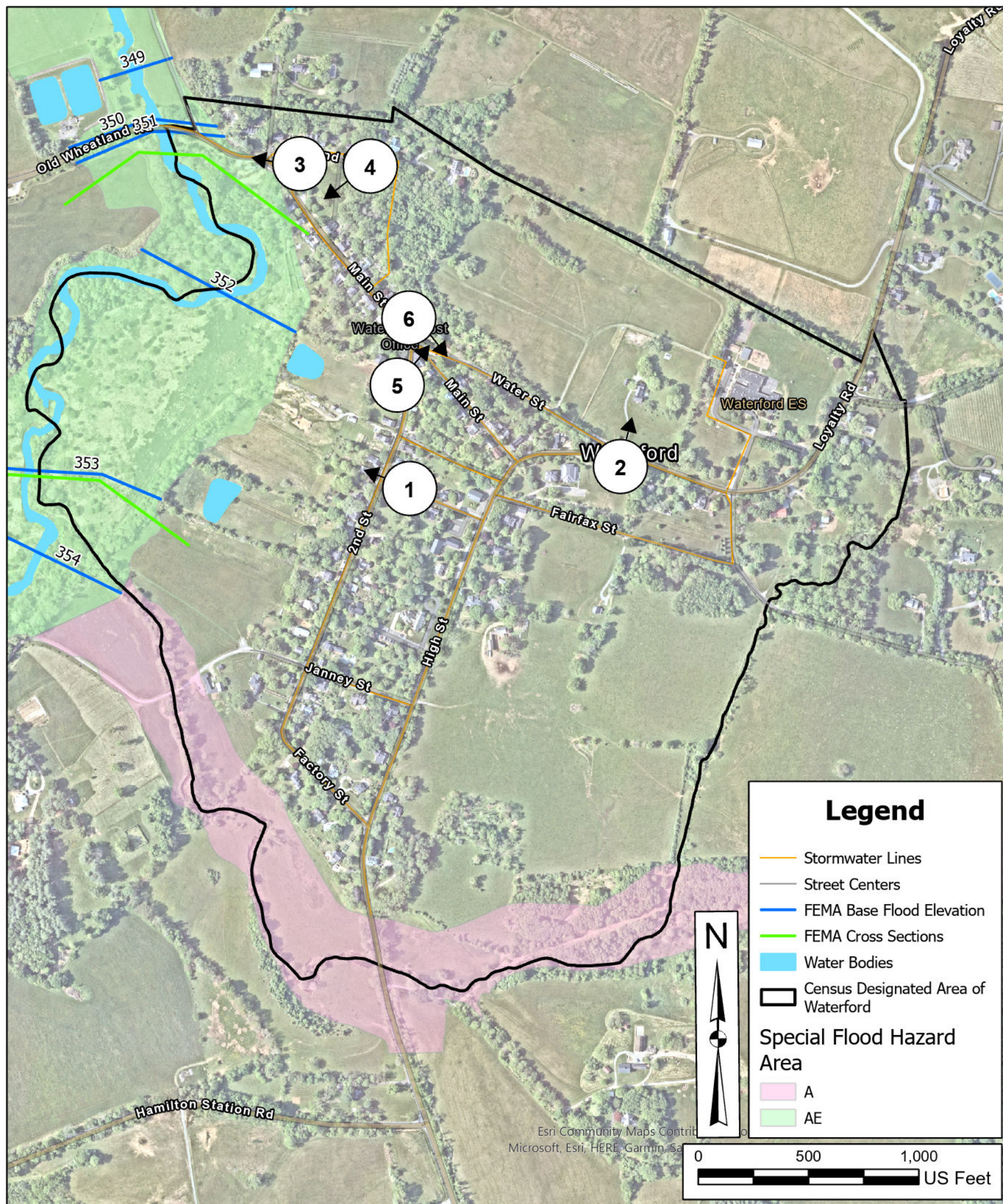
PREPARED FOR LOUDOUN COUNTY  
 DEPARTMENT OF TRANSPORTATION AND CAPITAL INFRASTRUCTURE

<b>SCALE</b>	1" = 400'
<b>PROJECT NUMBER</b>	N/A
<b>SHEET NUMBER</b>	APPENDIX C

**Legend**

- Water Bodies
- FIRM**
- 51107C0105E
- 51107C0115E
- Census Designated Area of Waterford
- Special Flood Hazard Area**
- A
- AE
- FEMA Base Flood Elevation
- FEMA Cross Sections





**PHOTO 1**  
SANDBAG IMPLEMENTATION ON SECOND ST.



**PHOTO 2**  
FLOODING ON WATER ST.



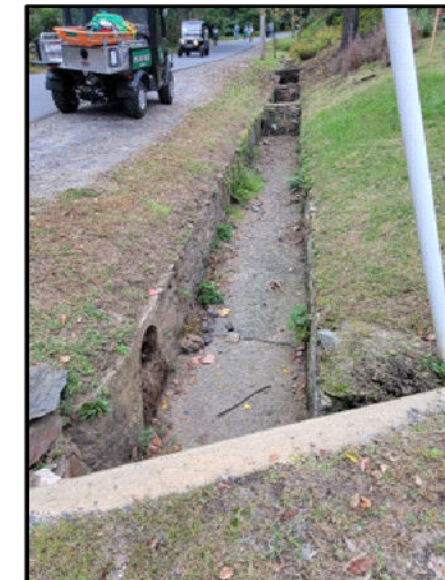
**PHOTO 3**  
CATOCTIN CREEK FLOOD IMPACTS ON THE WATERFORD MILL



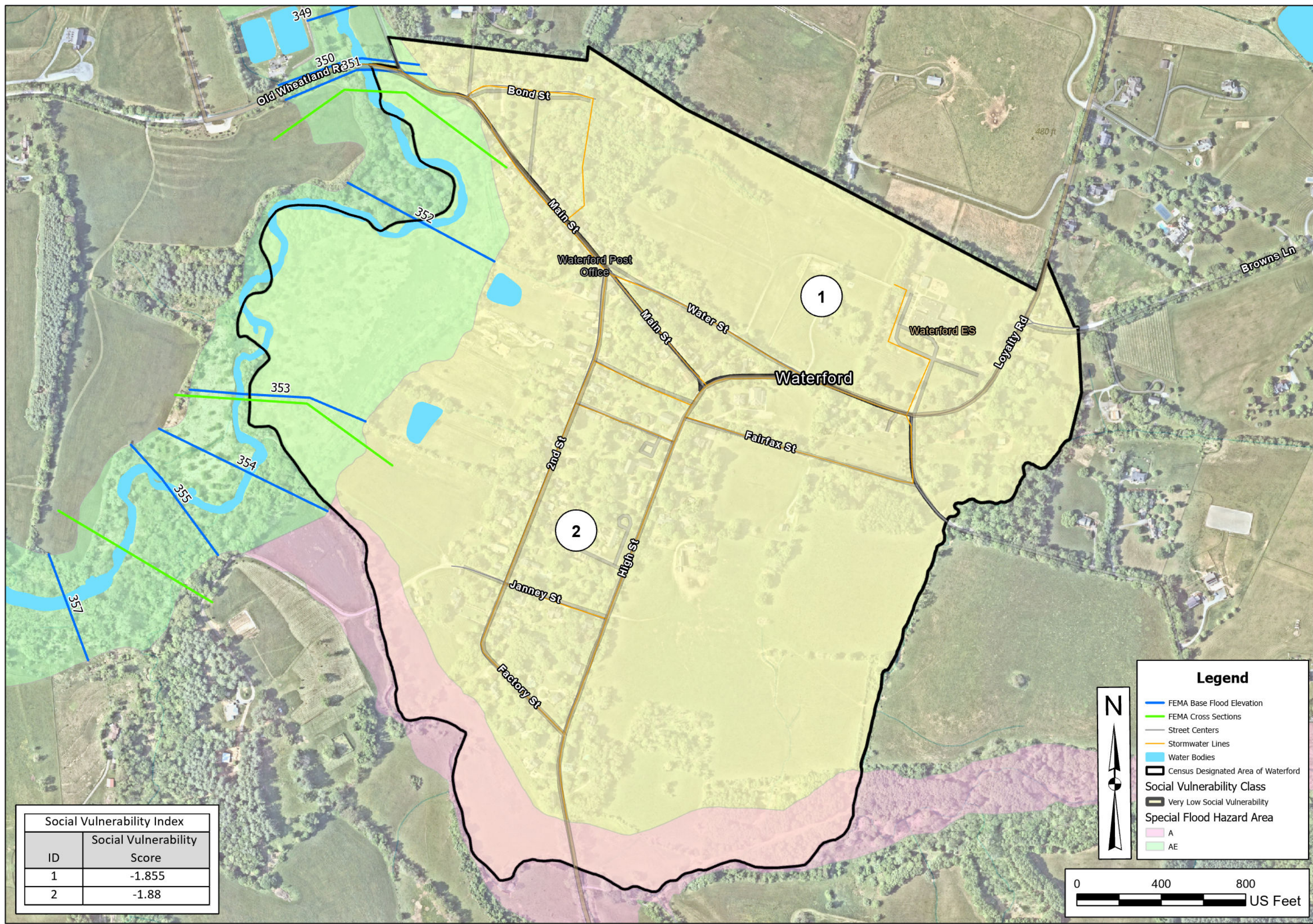
**PHOTO 4**  
FLOODING AT LOWER MAIN STREET AND BOND STREET



**PHOTO 5**  
INADEQUATE STORMWATER INFRASTRUCTURE



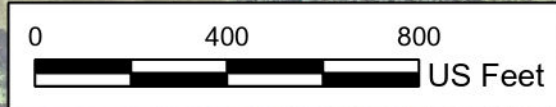
**PHOTO 6**  
INADEQUATE STORMWATER INFRASTRUCTURE

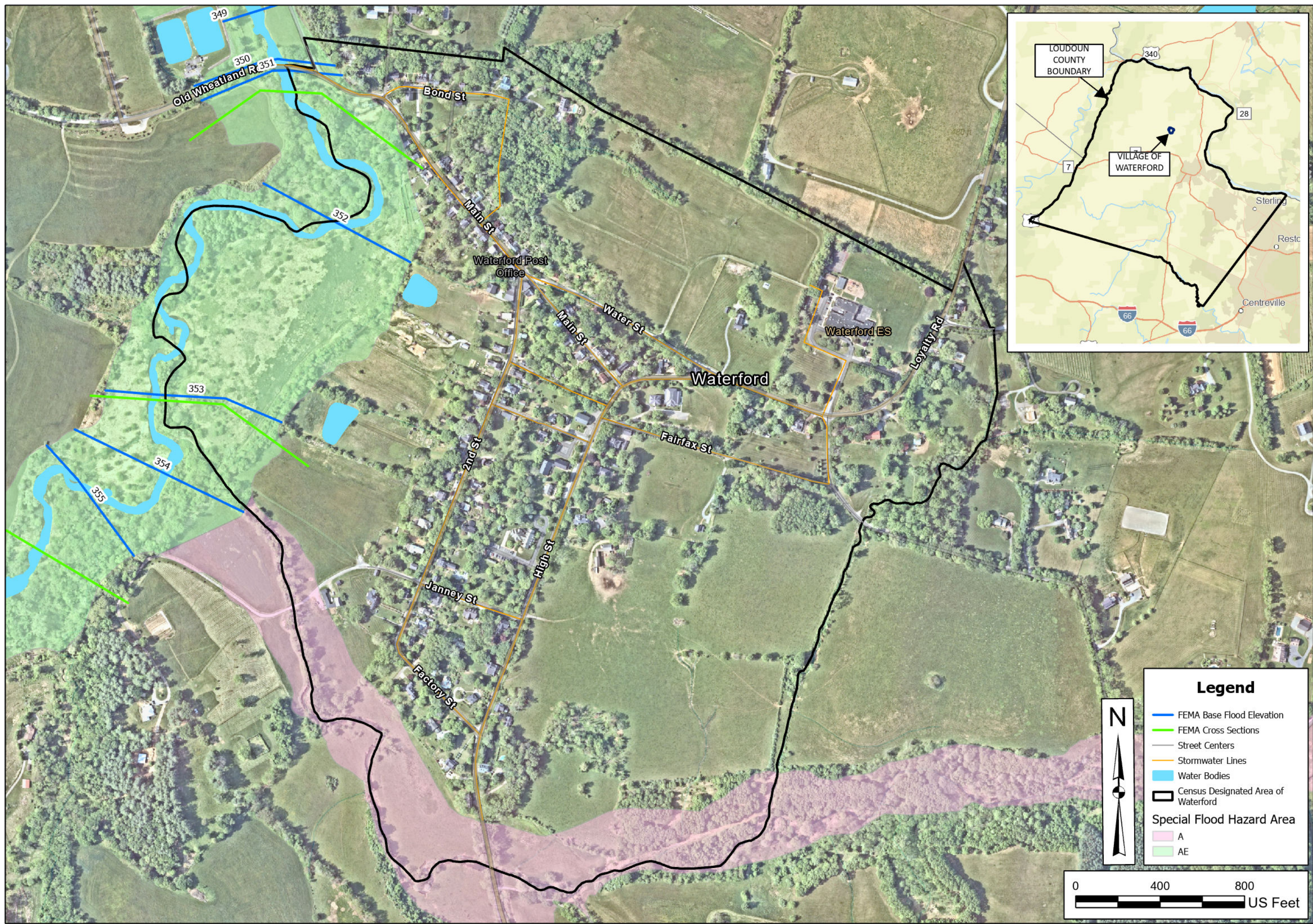


Social Vulnerability Index	
ID	Social Vulnerability Score
1	-1.855
2	-1.88

**Legend**

- FEMA Base Flood Elevation
- FEMA Cross Sections
- Street Centers
- Stormwater Lines
- Water Bodies
- Census Designated Area of Waterford
- Social Vulnerability Class**
- Very Low Social Vulnerability
- Special Flood Hazard Area**
- A
- AE





**DATE**  
11/2/2023

**DRAWN BY**  
MNP

**CHECKED BY**  
JJD

**VILLAGE OF WATERFORD  
HISTORIC DISTRICT OVERVIEW**

PREPARED FOR LOUDOUN COUNTY  
DEPARTMENT OF TRANSPORTATION AND CAPITAL INFRASTRUCTURE

**SCALE**  
1" = 400'

**PROJECT NUMBER**  
N/A

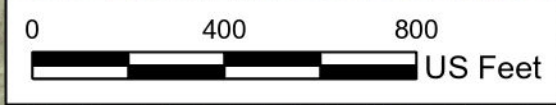
**SHEET NUMBER**  
APPENDIX C

**Legend**

- FEMA Base Flood Elevation
- FEMA Cross Sections
- Street Centers
- Stormwater Lines
- Water Bodies
- Census Designated Area of Waterford

**Special Flood Hazard Area**

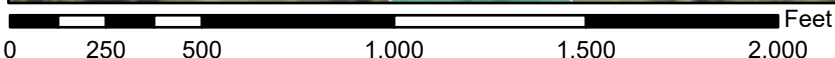
- A
- AE



# National Flood Hazard Layer FIRMMette



77°37'7"W 39°11'28"N



1:6,000

77°36'29"W 39°11'N

Basemap Imagery Source: USGS National Map 2023

### Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

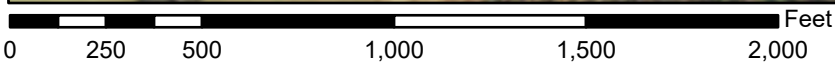
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/20/2023 at 1:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# National Flood Hazard Layer FIRMMette



77°37'4"W 39°11'N



1:6,000

77°36'27"W 39°10'32"N

Basemap Imagery Source: USGS National Map 2023

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/20/2023 at 1:20 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# National Flood Hazard Layer FIRMette



77°36'48"W 39°11'27"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

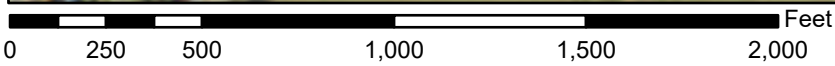
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/20/2023 at 1:08 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



1:6,000

77°36'10"W 39°10'59"N

Basemap Imagery Source: USGS National Map 2023





Photo 1. South Fork of Catocin Creek flood impacts on the Waterford Mill.



Photo 2. Flooding at Lower Main Street and Bond Street.



Photo 3. Flooding on Water Street.



Photo 4. Sandbag Implementation on Second Street.



Photo 5. Sandbag Implementation and inadequate drainage infrastructure at the intersection of 2<sup>nd</sup> Street, Water Street, and Main Street.



Photo 6. Lack of Stormwater Drainage Infrastructure on Main Street / Erosion.



Photo 7. Lower Main Street Drainage Pattern and lack of drainage infrastructure.



Photo 8. Elevation difference of High Street

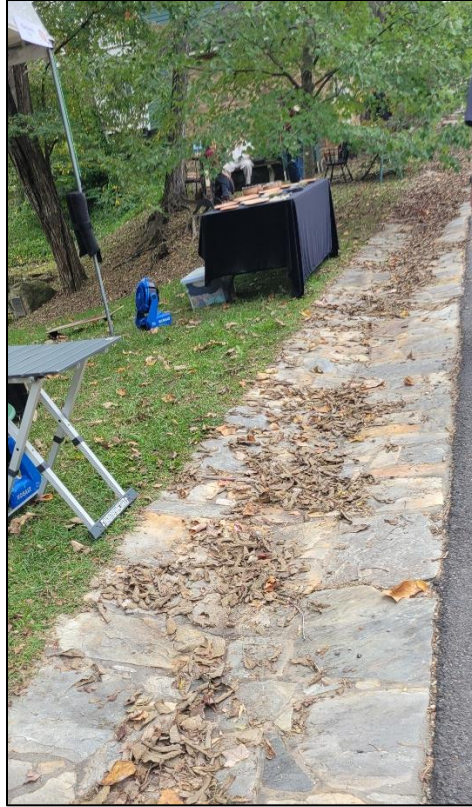


Photo 9. Inadequate Stormwater Drainage Infrastructure



Photo 10. Inadequate Stormwater Drainage Infrastructure



Photo 11. Inadequate Stormwater Drainage Infrastructure

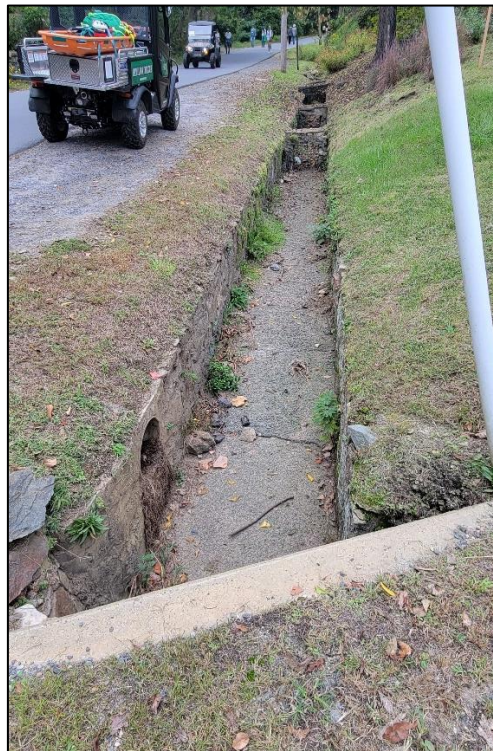


Photo 12. Inadequate Stormwater Drainage Infrastructure



Photo 13.

# Loudoun County 2019 General Plan

## **Interim Final Version Only**

Final Version pending edits and format design per Board of Supervisors Resolution  
CPRV-2016-0001, Adoption of Loudoun County 2019 Comprehensive Plan

June 20, 2019

Amended through February 7, 2023



*This page left blank for printing purposes.*

# Amendments

Loudoun County 2019 General Plan  
Adopted June 20, 2019  
Amended through February 7, 2023

<b>Date Approved</b>	<b>Application No.</b>	<b>Application Name</b>
December 1, 2020	CPAM-2020-0001	Public Facilities in the Rural Policy Area
January 17, 2023	CPAM-2021-0001	Airport Impact Overlay District Update
February 7, 2023	CPAM-2020-0002	Red Hill Community

For associated Comprehensive Plan Amendment (CPAM) documents, visit:

[www.loudoun.gov/lola](http://www.loudoun.gov/lola)

*This page left blank for printing purposes.*

# Errata Sheet

## Errata Sheet for the Loudoun County 2019 General Plan Adopted June 20, 2019

This errata sheet describes changes made to the Loudoun County 2019 General Plan to correct errors and provide clarification. Minor grammatical and typographical errors have been corrected but are not noted on this errata sheet.

<b>Date</b>	<b>Chapter</b>	<b>Correction</b>
July 11, 2019	Chapter 6 Strategy 3.1, iv.	Reference 3.1.K instead of 3.1.J
July 18, 2019	Chapter 3 Action 7.2.G	Reference Chapter 7 of the Loudoun County 2019 Countywide Transportation Plan instead of Chapter 8

*This page left blank for printing purposes.*

# Chapters

Chapter 1 - Introduction

Chapter 2- Land Use

Chapter 3 - Natural, Environmental, and Heritage Resources

Chapter 4 - Housing

Chapter 5- Economic Development

Chapter 6 - Fiscal Management and Public Infrastructure

Chapter 7 – Implementation

Glossary

Appendix A

*This page left blank for printing purposes.*

# Chapter 1 - Introduction

## Table of Contents

Purpose and Definition .....	3
Loudoun County’s Planning Approach .....	3
Loudoun County: Trends and Influences.....	6
Elements of the Loudoun County 2019 General Plan .....	9
Policy and Regulatory Context.....	10
Reference Maps .....	11



*This page left blank for printing purposes.*

# Chapter 1 - Introduction

The *Loudoun County 2019 Comprehensive Plan* (Comprehensive Plan) is the culmination of a collaborative multiyear effort and an unprecedented public outreach campaign that brought together Loudoun’s citizens, elected and appointed officials, stakeholders, and County staff to create a new comprehensive plan for the County. This planning process, known as *Envision Loudoun*, identified the community’s desires for the future of Loudoun County as they relate to growth management, land use, place types, transportation, natural, environmental, and heritage resources, community facilities and amenities, economic development, and fiscal management.



## **Vision:**

Loudoun County continues to flourish as a prosperous and inclusive community with a well-deserved reputation for great places – natural and built, as well as, historic and new – in a variety of settings. The County will foster economic innovation, fiscal strength, and sustainability.

The Envision Loudoun planning process began with a Charter adopted by the Board of Supervisors in April 2016. The Charter identified key issues to be addressed in the new comprehensive plan: Growth Management, Land Use, Transportation, Natural, Environmental, and Heritage Resources, Community Facilities and Amenities, Economic Development, and Fiscal Management. The Charter called for the formation of a 26-member committee of community stakeholders, convened a staff technical advisory committee from regional public agencies, and set forth a community engagement strategy to allow for multiple opportunities for public outreach throughout the process. To ensure the community was kept informed, a communications plan was deployed that utilized internet, social media, radio advertising, and print materials.

Envision Loudoun proved to be an unprecedented public engagement effort for the County. Between summer 2016 and spring 2018, the stakeholders committee and County staff held over 40 work sessions. The public participated in three sets of public outreach sessions – totaling 17 meetings – each at various locations throughout the County. An Envision Loudoun website was established and kept up-to-date with maps, process updates, and project documents. The website also provided a web interface for citizens to provide input regarding the key issues to be addressed in the new comprehensive plan. All told, approximately 3,000 people participated in the Envision Loudoun process.

## Purpose and Definition

The Comprehensive Plan includes this *Loudoun County 2019 General Plan* (General Plan) and the *Loudoun County 2019 Countywide Transportation Plan* (2019 CTP), a document developed in close coordination with this General Plan. The Comprehensive Plan is not a development ordinance, but is instead a policy document that provides guidance for elected officials and other governmental decision-makers as to where and how the community will grow in the long-term.

A comprehensive plan provides an opportunity for a community to think collectively about its future and to develop a shared set of values and strategies intended to achieve a unified vision. A comprehensive plan is a critical tool for managing growth, the provision of capital facilities, and the fiscal health of communities. It is especially important for high growth communities like Loudoun County, where change can happen quickly, and a comprehensive plan is needed to guide that change. A comprehensive plan is not a static document. In accordance with the Code of Virginia it must be reviewed at least every five years.

## Loudoun County's Planning Approach

The General Plan builds upon the County's strong foundation of growth management practices. The Loudoun County Board of Supervisors adopted the County's first zoning ordinance in 1942 and its first comprehensive plan in 1959. The County's 1991 general plan, *Choices and Changes*, was written when the County was largely undeveloped with an abundance of greenfield development opportunity in the eastern part of the County. By 2001, when the *Revised General Plan* was adopted, the County was feeling the effects of a 97 percent population increase since the adoption of *Choices and Changes*.

For decades, the County has supported the protection of its rural and agricultural areas to the west and focused development in suburban areas to the east. The County has accommodated growth near existing infrastructure to support development in a fiscally sound manner, where the market forces have been strongest for new residential and employment development. Loudoun's growth management policies have resulted in some of the most highly valued residential communities in the region, while also encouraging new business development.

The framework for land planning in Loudoun County consists of four types of policy areas – Urban, Suburban, Transition, and Rural – and several smaller planning areas designated as Joint Land Management Areas (JLMA) and Rural Historic Villages. These areas represent distinct planning communities with specific policies, strategies, and actions tailored to address the needs of each area.



*Loudoun Station, a mixed-use town center development adjacent to the Silver Line Ashburn Station, is within one of the new Urban Policy Areas.*

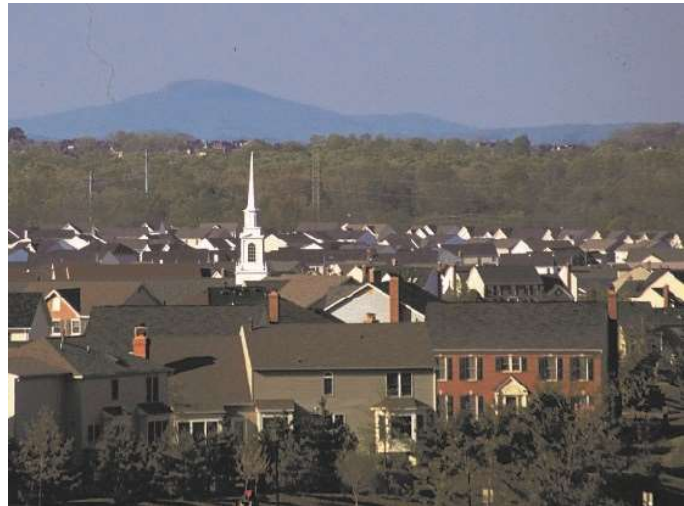
## Urban Policy Areas

The Urban Policy Areas (UPA) represent a new planning area concept in Loudoun, encompassing approximately 2,600 acres in areas around the Silver Line Metrorail Stations. The two UPAs represent major growth opportunities for Loudoun with mixed-use and transit-oriented place types and development intensity not previously contemplated in the County. The Comprehensive Plan calls for complete urban communities that accommodate housing, employment, retail, education, and

entertainment in close proximity to Metrorail. These areas will facilitate opportunities for significant job creation and expansion of the County’s tax base.

## Suburban Policy Area

The 48,000-acre Suburban Policy Area (SPA) comprises the eastern third of the County and is where most of the residential and commercial growth has occurred since the 1960’s. The SPA developed in a traditional suburban pattern with predominantly single-family neighborhoods. From 1990 to 2017, 102,905 housing units were built throughout Loudoun County and over 70 percent of those were built in the SPA. Route 28 and Loudoun County Parkway (Route 607) form the County’s “data center alley,” having evolved into an international leader for global data management, technology, and communications industries. More than 70 percent of all internet traffic is routed through data



*Much of Loudoun's residential growth has occurred in the easternmost part of the County. With decreasing undeveloped areas, the Loudoun County 2019 General Plan anticipates a more integrated mix of uses in this part of the County over the next two decades.*

centers in this policy area. The area around Washington Dulles International Airport is also expected to continue to be a major factor as a key location for industrial uses, airport-related businesses, and data center development.



*The Transition Policy Area is planned for a diversity of housing options in clustered patterns with substantial open space areas that provide recreational amenities and protect natural, environmental, and heritage resources.*

## Transition Policy Area

The Transition Policy Area (TPA) is a 24,000-acre area along the western edge of the SPA and is intended to be visually distinct from the SPA and Rural Policy Area (RPA). The area is planned for a diversity of large-lot and clustered residential uses with limited commercial uses to support residents and some industrial spaces focused on quarry activity and energy infrastructure. Public utilities are available in the TPA, though the transportation network is limited in certain places at present time. Large amounts of open space, trails, and parks provide recreational opportunities for residents of the

entire County and help to maintain a visual distinction between the more densely populated east and the rural west.

## Rural Policy Area

The western 230,000-acre RPA comprises nearly two-thirds of Loudoun's land area and contains twelve Rural Historic Villages (see Chapter 2). This area is planned for limited residential development and supports a robust rural economy. The General Plan includes policies that protect the landscape, economy, and the existing community character of the RPA, emphasizing the preservation of farmland; natural, environmental, and heritage resources; open space; and vistas that are vital aspects of Loudoun's identity.



*The Loudoun County 2019 General Plan recognizes the importance of protecting the pastoral landscapes and agricultural character of Loudoun's Rural Policy Area.*



*Loudoun County's western landscape is dotted with historic towns that serve as hubs for the rural community.*

## Towns and Joint Land Management Areas

Loudoun County's seven incorporated towns exercise planning and zoning controls within their corporate limits. In addition to the four policy areas, the County has partnered with several of its towns to develop JLMAs around the edges of the towns. A JLMA is a planning area where the County and each respective town set the limits for potential municipal water and sewer extension. These JLMA planning areas effectively serve as a growth boundary for each town and are intended to manage new growth and expansion outward from the towns.

## Loudoun County: Trends and Influences

Loudoun County has rapidly transformed from a farming community to one of the fastest growing counties in the nation, ranking fifth in the country for growth between 2000 and 2010. This growth has slowed somewhat as developable land in the eastern part of the County has become more constrained, but the County's high quality of life, strong economy, natural and historic assets, and proximity to Washington, D.C. will continue to drive market demand. The General Plan identifies a number of trends and influences, including population diversity, housing affordability, and land availability that will affect future demand for both residential and nonresidential products.

### Loudoun by the Numbers

- **406,850:** Loudoun County's population.
- **121,299:** Number of households.
- **\$129,588:** Median annual household income.
- **41.5:** Percent of households with annual income above \$150,000.
- **2.8:** Percent of households with annual income below \$15,000.
- **35.8:** Loudoun County's median age
- **28.5:** Percent of population under 18 years of age.
- **8.9:** Percent of population 65 years and older.
- **31.4:** Percent of population that speaks a language other than English at home.
- **93.5:** Percent of population 25 years and over graduated from high school.
- **59.8:** Percent of population 25 years and over with a bachelor's degree or higher.
- **32.1:** Average number of minutes it takes commuters to get to work.

*Source: U.S. Census Bureau 2019 Quickfacts; 2013-2017 American Community Survey 5-Year Estimates*

## People

Loudoun County's population has risen over the decades as the Washington, D.C., Metropolitan Area has grown and as Loudoun County has captured more of this regional growth. In 1940, the County's population was just over 20,000 people. Fifty years later, the population had quadrupled, totaling just over 86,000 people in 1990. Since 1990, the population quadrupled again with an estimated 406,850 people in 2018.<sup>1</sup> However, this exponential growth is projected to slow as Loudoun continues to mature, a trend that may already be occurring. From 2000 to 2010, Loudoun was the 5th fastest growing county in the nation, but dropped to the 20th fastest growing county from 2010 to 2015. Even with this slowdown, Loudoun's population is projected to increase to almost 694,911 by 2040.<sup>2</sup>

As Loudoun's population has grown, the community has also diversified. Between 2000 and 2018, the percentage of Loudoun's population identifying as Hispanic or Latino increased from 6.0 percent to 13.9 percent. During the same time period, the percentage of people identifying as Asian grew from 5.6 percent to 19.4 percent. The percentage of residents identifying as Black or African American is also growing, though at a much slower rate, increasing from 7.0 percent to 7.9 percent.<sup>3</sup> Overall, Loudoun's foreign-born population has increased from 11.3 percent in 2000 to 23.9 percent in 2017.<sup>4</sup> This growth has led to greater diversity in service demands, expanded retail and entertainment opportunities, changes in housing needs, and overall expanded economic growth of the community.

## Housing

As of 2017, Loudoun ranked number one in the country for the highest median household income for the tenth straight year, yet housing affordability and attainability remain a significant challenge in the County and the region. Limited housing supply and high demand present difficulties for employers in attracting employees and contribute to workforce instability, especially in lower paying industries.

Over 82 percent of Loudoun's existing housing stock consists of traditional suburban single-family detached and single-family attached dwellings. Most of the housing stock is also considered large, with 80 percent of all dwellings containing three or more bedrooms. Conversely, studio and one-bedroom housing make up less than six percent of all housing in the County. National trends show that smaller households, such as aging seniors, couples without children, and single persons, may demand different housing types, public services, and lifestyle options than provided in the past. There is also a general national trend toward more people living in multigenerational households, which may require different types of housing options to help accommodate the needs of multiple generations living together.

The General Plan provides a renewed opportunity for the County to adopt a policy direction that promotes an inclusive, diverse, and flexible housing environment that aligns with the community's

---

<sup>1</sup> U.S. Census Bureau, Population Estimates Program (PEP), 2018

<sup>2</sup> University of Virginia Weldon Cooper Center, Demographics Research Group. (2017). Virginia Population Projections.

<sup>3</sup> U.S. Census Bureau, Population Estimates Program (PEP), 2018

<sup>4</sup> U.S. Census Bureau, 2013-2017 American Community Survey

larger land use and community development goals. The General Plan anticipates that new approaches to planned land use policies will facilitate market-driven increases in the variety of housing types developed, help fulfill the demand for market rate sales and rental units, and temper rising housing costs overall. A variety of existing and planned County, state, and federal initiatives and programs will continue to provide housing options for more vulnerable population groups.

The County anticipates continued high demand for new residential units over the next several decades, which could compound challenges related to both availability and affordability. With limited land available for residential development in the SPA and the County's desire to protect the character of the RPA, the General Plan emphasizes new opportunities to create places that will meet the needs of the growing and diversifying community.

The designation of new UPAs aims to provide high quantities of new housing in active, mixed-use, transit-oriented settings proximate to the planned Silver Line Metrorail stations. The General Plan also reimagines areas of the SPA and aims to provide more housing options through new opportunities for mixed-use development, compact neighborhoods on infill parcels, and innovative approaches to redeveloping maturing neighborhood centers. The General Plan also anticipates a mix of compact single-family and semi-attached housing products (e.g., duplex, triplex, and quadruplex) in targeted parts of the TPA. This multifaceted approach is intended to promote housing availability and affordability, increase the diversity of housing choices, and create new places that meet the County's evolving needs without compromising the quality of life for which Loudoun is known.

## **Transit**

The County's connection to the regional Metrorail network through the Silver Line extension signals a new era for Loudoun, with significant impacts on transit options available to Loudoun's residents, workers, and visitors. Two Metrorail stations in Loudoun provide a gateway to Loudoun County from Washington, D.C., while also providing Loudoun's residents with an alternative method of commuting to the east. Access to the Silver Line creates the opportunity to develop vibrant, transit-oriented, mixed-use, urban environments around the Metrorail stations, where people can live and work in close proximity to regional transit.

The Washington Dulles International Airport will also continue to serve as a major transportation gateway to the country and the world. It provides a critical economic engine for leisure and business travel as well as cargo transport for the County and the larger Washington, D.C., region. In 2017, 265,025 flights operated out of Washington Dulles International Airport, serving nearly 22,800,000 passengers, including 7,744,586 international travelers.<sup>5</sup> With its close proximity to the Metrorail stations and UPAs, Washington Dulles International Airport is well positioned to grow moving into the future, operating currently at approximately one-third of its ultimate capacity.

---

<sup>5</sup> Metropolitan Washington Airport Authority, 2018



## Economy

The General Plan acknowledges that local, regional, and national economic factors have changed significantly in the last two decades and includes new policies and strategies to continue Loudoun’s remarkable success as an economic leader in the region. Employment in Loudoun County increased nearly 77 percent from 2000 to 2015, adding over 67,000 new jobs in a 15-year period.<sup>6</sup> Momentum in Loudoun’s job base is influenced by activity in the surrounding region, proximity to Washington Dulles International Airport, a growing information and communications sector, agritourism, and a robust increase in households requiring a wide array of services.

Loudoun’s economy continues to diversify and the General Plan provides growth opportunities for this evolving economy. Employment uses adjacent to the future Metrorail Stations will also present new opportunities to attract employers who seek to locate in dynamic, urban communities with access to mass transit.

## Elements of the Loudoun County 2019 General Plan

The General Plan begins with an overarching vision and goals; then sets forth policies, strategies, and actions for five elements: Land Use; Natural, Environmental, and Heritage Resources; Housing; Economic Development; and Fiscal Management and Public Infrastructure. An Implementation Matrix is provided to prioritize and track the execution of the *Loudoun County 2019 Comprehensive Plan* action items. In addition to this Introduction, the General Plan includes chapters associated with each of the five elements and the Implementation matrix:

- *Land Use.* Chapter 2 lays out the vision for Loudoun’s future land uses, growth management, and built environment. It includes specific policy guidance for Quality Development, Infill and Redevelopment, and each geographic policy area. Place Types guide the intent, form, character, and anticipated uses within each policy area.
- *Natural, Environmental, and Heritage Resources.* Chapter 3 provides guidance for the protection, maintenance, and enhancement of the County’s abundant natural, environmental, and heritage resources. The policy approach is applicable at multiple geographic scales, from initiatives that may affect these resources countywide, to management of specific watersheds and waterways, to site-level development considerations.
- *Housing.* Chapter 4 analyzes the current and anticipated housing environment in Loudoun County and includes policies aimed at ensuring the provision of a full housing continuum for the varied lifestyles, households, ages, cultures, market preferences, incomes, and abilities of Loudoun’s residents.
- *Economic Development.* Chapter 5 examines the many challenges and opportunities facing Loudoun County in maintaining and advancing the County’s diverse and globally competitive economy. The policies focus on targeted industries, investments, and County initiatives that contribute to Loudoun’s world-class business environment and ties in land use considerations to sustain a diverse, adaptable, and dynamic County economy.

---

<sup>6</sup> Loudoun County Department of Economic Development, 2018

- *Fiscal Management and Public Infrastructure.* Chapter 6 acknowledges the interrelatedness of land use, growth management, fiscal management, and facilities planning. The policy approach ensures the provision of public facilities and utilities, high-quality telecommunications networks, and passive and active recreational amenities in accordance with the County’s larger planning and fiscal policies.
- *Implementation.* Chapter 7 compiles the individual Policies, Strategies, and Actions described throughout the *Loudoun County 2019 General Plan* and provides an Implementation Matrix that assigns responsibility for each action item.

In addition to the Place Types in Chapter 2, the General Plan’s guidance is established through:

- Policy statements for each element that provide the approach to decision-making for specific topics or issues;
- Strategies providing more focused, measurable guidance for decision-making relative to each policy; and
- Actions that target specific steps to realize the Policies and Strategies and intent of the General Plan.

The five elements of the General Plan are interrelated and complementary, and Policies, Strategies, and Actions from multiple elements may apply when evaluating individual proposals or initiatives. The Policies, Strategies, and Actions are organized hierarchically; however, each category carries equal weight. As such, Strategies may apply to different Policies and Actions may apply to different Strategies than those under which they are nested.

## Policy and Regulatory Context

### Statutory Basis for the Comprehensive Plan

The basis for the Comprehensive Plan is rooted in Chapter 22, Article 3 of Title 15.2 of Code of Virginia. The County’s Planning Commission is responsible for preparing and recommending a comprehensive plan to the Board of Supervisors, which adopts the plan. Subject to the requirements and limitations of state law, the County manages the physical development of territory within its jurisdiction in accordance with the policies of its comprehensive plan.

### Relationship to Other Planning Documents

The Comprehensive Plan serves as the “umbrella” for the County’s planning efforts and consists of the General Plan and the 2019 CTP. The Comprehensive Plan supersedes the following previously adopted planning documents: the *Revised General Plan* (2001, as amended); the *Revised Countywide Transportation Plan* (2010, as amended); the *Bicycle and Pedestrian Mobility Master Plan* (2003); the *Greenways and Trails Policies* (1994); the *Toll Road Plan* (1995); the *Countywide Retail Policy Plan Amendment* (1997, as amended); the *Route 28 Keynote Employment Policies*, which includes the *Route 28 Corridor Plan* (2011); the *Arcola Area/Route 50 Corridor Plan* (2006); the *Leesburg Area Management Plan* (1982, as amended), the *Dulles North Area Management Plan* (1985, as amended), the *Dulles South Area Management Plan* (1993), the *Cub Run Area Management Plan* (1989), and the *Eastern Loudoun Area Management Plan* (1980, as amended).

The County will continue to apply the *Comprehensive Plan for the Town of Hamilton* (2003), the *Round Hill Area Management Plan* (1990, as amended), and the *Waterford Area Management Plan* (1987). The *Heritage Preservation Plan* (2003, as amended), *Route 50 Corridor Design Guidelines* (2007), and *Strategic Land Use Plan for Telecommunication Facilities* (1996) also remain in effect. The policies and guidelines in the Comprehensive Plan will supersede any conflicting policies and/or guidelines contained in any of the plans mentioned above.

The Comprehensive Plan anticipates the need for additional detailed planning efforts, such as community plans, to address the County’s complex and evolving planning challenges and to better realize the County’s long-range community development goals.

### **Relationship to Regulatory Documents**

The General Plan sets forth the community-based vision for Loudoun’s future and is a policy document that provides guidance to the County’s decision-makers regarding land development, capital improvements, and public programs. Loudoun County’s zoning ordinances are regulatory documents that establish the rules governing the use of land. The zoning ordinances specify permitted uses on properties, regulate the density and intensity of development, and establish design parameters for developments.

A new zoning ordinance will implement many of the Policies, Strategies, and Actions described in the General Plan. Parts of the General Plan also refer to other documents that regulate land development, including the *Loudoun County Facilities Standards Manual* and the *Loudoun County Land Subdivision and Development Ordinance*. Although the Comprehensive Plan provides guidance for potential revisions and amendments to various regulations, it does not replace or supersede the County’s existing codes and ordinances, all of which remain in effect.

For the purpose of staff review of legislative applications, Policies, Strategies, and Actions that propose the development of new regulations, amendments to existing regulations, or the creation of new regulatory incentives will be treated as Comprehensive Plan policy guidance until implemented.

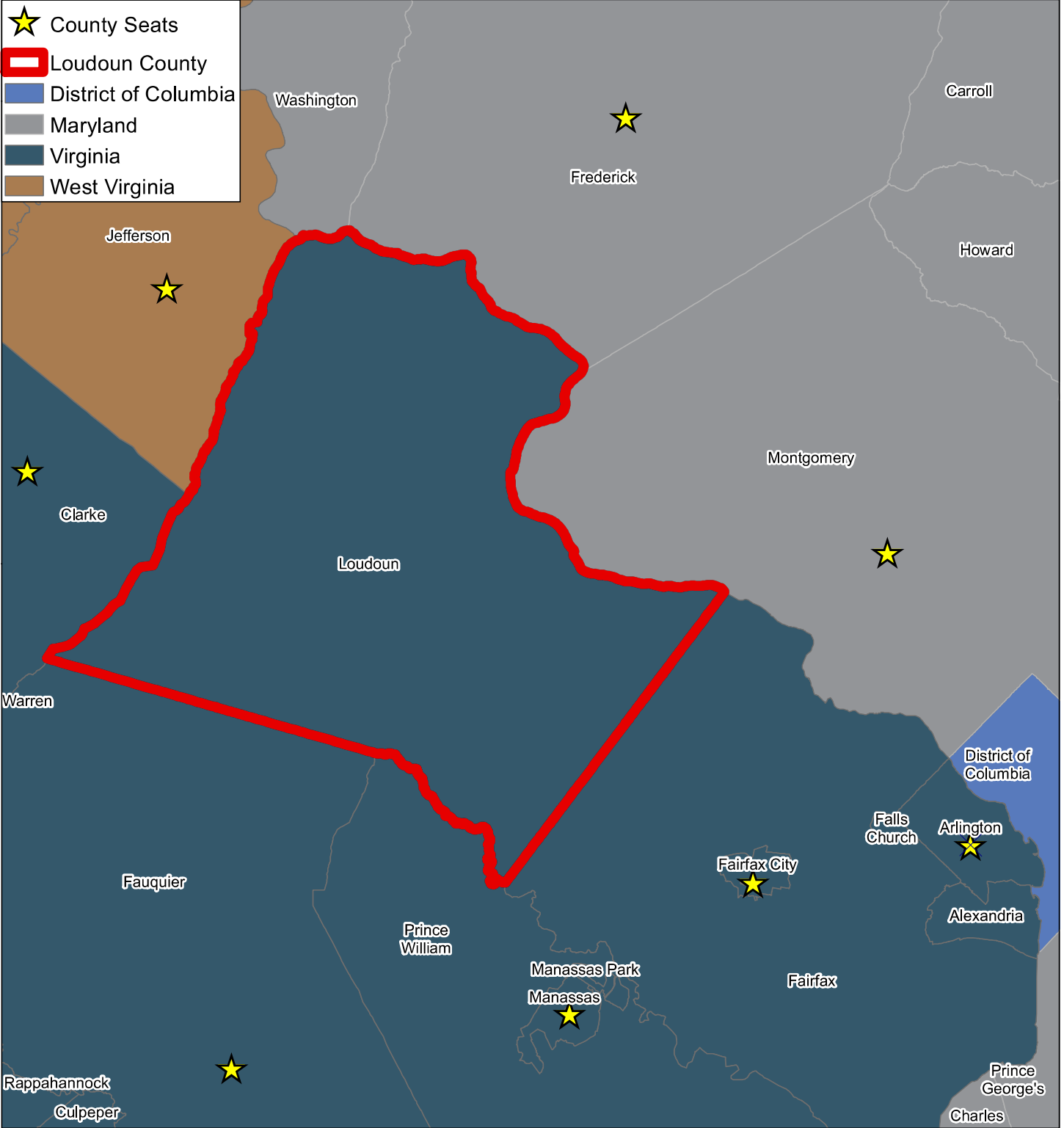
### **Reference Maps**

Loudoun County and Surrounding Area (Map #2018-153)

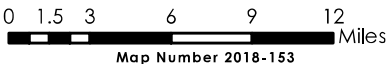
Loudoun County  
**Loudoun County and  
 Surrounding Area**  
 2019 General Plan



- ★ County Seats
- ▭ Loudoun County
- ▭ District of Columbia
- ▭ Maryland
- ▭ Virginia
- ▭ West Virginia



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



*This page left blank for printing purposes.*

# Chapter 2 - Land Use

## Table of Contents

Quality Development .....	5
Vision .....	5
Introduction.....	5
Expected Growth and Development Patterns .....	6
Place Types .....	7
Policies, Strategies, and Actions.....	12
Infill and Redevelopment.....	17
Vision .....	17
Introduction.....	17
Opportunities.....	19
Emerging Reinvestment Issues .....	19
Challenges.....	20
Policies, Strategies, and Actions.....	22
Urban Policy Areas .....	26
Vision.....	27
Introduction.....	26
Development Approach .....	26
Policies, Strategies, and Actions.....	27
Design Guidelines.....	29
Place Types .....	31
Suburban Policy Area .....	40
Vision.....	40
Introduction.....	40
Development Approach.....	41
Policies, Strategies, and Actions .....	44
Design Guidelines.....	47
Place Types .....	48
Transition Policy Area .....	66
Vision.....	66

Introduction..... 66

Background..... 67

Development Approach ..... 68

Policies, Strategies, and Actions..... 69

Design Guidelines..... 73

Place Types ..... 75

Rural Policy Area..... 92

    Vision..... 92

    Introduction..... 92

    Rural Residential..... 94

    Rural Economy ..... 94

    Farmland Preservation and Protection ..... 96

    Future of Rural Strategy..... 97

    Policies, Strategies, and Actions..... 98

    Design Guidelines..... 101

Rural Historic Villages ..... 103

    Vision..... 103

    Introduction..... 103

    Policies, Strategies, and Actions..... 104

    Design Guidelines..... 105

Rural Policy Area Place Types ..... 107

Towns and Joint Land Management Areas..... 115

    Vision..... 115

    Introduction..... 115

    Development Approach ..... 115

    Policies, Strategies, and Actions..... 116

        Leesburg..... 118

        Hamilton ..... 119

        Hillsboro ..... 121

        Lovettsville ..... 123

        Middleburg..... 125

        Purcellville ..... 126

Round Hill..... 128  
Design Guidelines..... 130  
County/Town Annexation Agreement/Corporate Boundary Line Adjustment..... 131  
Reference Maps ..... 134  
Place Types ..... 149



*This page left blank for printing purposes.*

# Quality Development

## Vision

Loudoun will carry forth our successful land use and growth management policy while promoting the well-planned development of unique and appealing places providing a full spectrum of housing and employment options that are linked to supporting commercial, entertainment, educational, agricultural, and recreational activity.

## Introduction

Loudoun County has accommodated a high rate of growth over the past decades, concentrating new development in the eastern portion of the County where utilities and roadways have been constructed to serve the population efficiently. Much of Loudoun's success is due to land use planning that has guided, managed, and directed growth to appropriate locations. Loudoun County's growth management strategy has comprised an approach that 1) focuses the location and intensity of development in eastern Loudoun and around towns, which maintains the agricultural character, pastoral landscapes, and natural resources of the County's rural areas; 2) uses service standards and development forecasting to plan the location and timing of investments in infrastructure, facilities and services; and 3) calculates a fair share contribution by new development towards associated capital facility impacts. This approach recognizes that more concentrated population centers better facilitate the provision of emergency response services, roads, utilities, and public facilities. Further, the location of such services and facilities often guide subsequent development patterns. By concentrating these services in the areas of the County where development has been planned and appropriately scaling their availability and levels of service in the less developed areas, the County facilitates growth patterns that help achieve long-term land use, environmental, economic, and fiscal goals.

Previous planning efforts in Loudoun County have focused on promoting quality of life by establishing and delivering a shared vision. The *Loudoun County 2019 Comprehensive Plan* (Comprehensive Plan) and, more specifically, the *Loudoun County 2019 General Plan* (General Plan) build upon previous efforts and encourage a range of priorities that will further enhance quality of life in the County through a renewed vision. To realize this vision, Quality Development addresses a range of topics important to future growth and development that will have a lasting and positive impact on current and future generations in the County. Quality Development represents a level of excellence and a commitment to inclusiveness in future planning efforts. It is a holistic approach that seeks to maintain and build upon the high quality of life that residents have grown to enjoy.

To further enhance and improve the quality of life in Loudoun County, this chapter presents countywide policies that will allow the County to address growth and development in future planning and implementation initiatives. The goal of Quality Development in Loudoun is to support these initiatives based on the following aspirations:

- Make great places through development that complements, strengthens, and benefits surrounding communities.

- Encourage a mix of complementary land uses and project designs that ensure the long-term sustainability, or environmental and economic health, of both the individual development and the broader community.
- Foster places with distinctive identities through the use of high-quality design, siting, landscaping, architecture, signage, sustainability, and other design elements.
- Integrate land use and transportation policies that prioritize development at the Metrorail Stations and provide the most compact and accessible development.

Quality Development also encompasses key qualities that will ensure future development positively contributes to the daily life of citizens by establishing and building upon traditional growth patterns and creating places that are conducive to a range of daily activities. Consideration of the following characteristics will help ensure future development and coordinated placemaking enhance quality of life in Loudoun:

- Sensitive integration of the natural and built environments,
- Context-sensitive site and building design between adjacent developments and land uses,
- Architecture that is appropriate for its context,
- Sustainable energy technology,
- Walkable and pedestrian-friendly environments that promote activity and connectivity in spaces between buildings and developments,
- Multi-modal choices that offer a range of transportation opportunities, and
- Accessible and connected parks and open spaces.

Emphasis on the incorporation of these characteristics in existing and future development is integral to Quality Development. Their thoughtful consideration will help ensure high-quality design and aid in the creation of communities that have distinctive identities.

Loudoun will continue to be an attractive place for development given its geographic location, school system performance, business-friendly practices, and notable quality of life. However, new policies and approaches in the General Plan provide guidance to address emerging issues and trends in the County and region. These emerging issues and trends, include a constrained land supply, the County's connection to the regional Washington Metropolitan Area Transit Authority (WMATA) Metrorail network through the Silver Line extension in 2020, availability and affordability of housing, and a growing demand for new development options. The Plan streamlines its presentation of design concepts, providing specific design guidelines for each policy area in subsequent sections of this chapter. Future implementation of the design policies in the General Plan will require thoughtful revisions to zoning regulations that will help accommodate the flexibility and adaptability of a new land use planning approach in Loudoun.

## **Expected Growth and Development Patterns**

Building upon the County's successful planning policy, the General Plan is largely organized by geographic policy areas that serve to prioritize areas for new growth and development based on the availability of existing and planned infrastructure and public facilities. Accordingly, this chapter describes the policy areas that provide the geographic framework for the County's growth

management and land use strategies. Policy areas in the General Plan include the Suburban Policy Area (SPA), Transition Policy Area (TPA), Rural Policy Area (RPA), Towns & Joint Land Management Areas (JLMAs), and newly-established Urban Policy Areas (UPA).

The UPAs are intended to accommodate living, working, shopping, and playing in a dense urban environment, creating complete communities that will serve as centers of activity for the County. The Plan designates two areas around the Silver Line Metro stations as UPAs, envisioning these areas to develop as dense urban centers. Both areas represent major growth opportunities for the County and are planned to provide for walkable mixed-use and transit-oriented development that will more efficiently absorb much of the County’s anticipated growth, offer a diversity of housing to meet changing housing needs, and offer flexible land use policies to allow for innovation and changing market demands.

The SPA continues to be planned for additional growth and development though at a lesser intensity than the Urban Policy Areas. However, rapid growth in the SPA in recent decades has significantly reduced the amount of developable land and subsequently reduced this area’s capacity to accommodate substantial growth. This represents a significant juncture in the County’s planning and development history as development efforts will increasingly emphasize infill development on the few remaining undeveloped parcels in the SPA as well as the redevelopment and adaptive reuse of existing buildings.

The TPA is intended to be visually distinct from the Suburban and Rural Policy Areas with a development pattern focused on retaining substantial open space within the context of an assortment of community designs. The open spaces serve as dominant landscape and development features that provide opportunities for public recreation and facilities interwoven through a land use pattern that is predominantly residential with limited commercial and industrial uses.

The RPA comprises nearly two thirds of Loudoun’s land area in the western portion of the County and contains twelve historic Rural Villages. This area is planned as an enduring rural landscape of working agricultural lands, rural economy uses, and limited residential development. Protection of the RPA helps to ensure the preservation of farmland, natural, environmental, and heritage resources, open space, and vistas that are vital aspects of Loudoun’s identity.

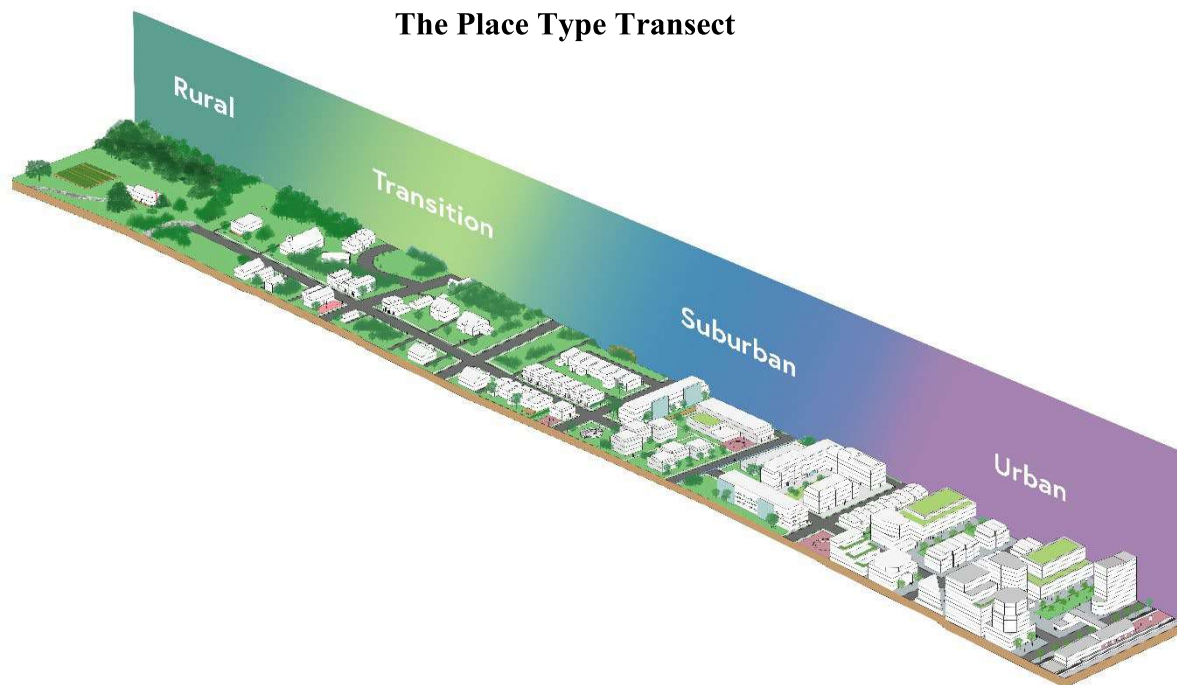
## **Place Types**

While the policy areas described in this chapter provide the geographic foundation for the County’s growth management and land use strategies, the Plan refines the County’s policies to better adapt to rapid changes in technology, demographics, and market factors without losing sight of the County’s vision and goals. Central to this more adaptable, enduring approach to land use is the “place type” concept.

The place type approach differs from the County’s previous approach to land use planning in that it provides a way to shape the future of Loudoun by concentrating on context – the look and feel of places, their form and their character – instead of focusing only on conventional land use categories and specific uses. Place type categories define not only the basic expected land uses for

specific areas in the County, but also preferred development patterns, streetscapes, and design features that make places and environments visually distinctive and functional for people.

The place type approach is intended to create distinct and “complete” residential neighborhoods, employment centers, open spaces, and other areas. By providing greater flexibility in development types and uses while providing additional guidance on design expectations, place types can also facilitate more dynamic, livable neighborhoods and allow for established areas to evolve and improve. In the next graphic you will find the transect of the County, which transitions from rural to increasingly urban place types. A transect defines a series of place types that transition from sparse rural farmhouses to the dense urban core. Each place type contains a similar transition from the edge to the center of the neighborhood. The transect does not show all place types found in the plan, but rather a few to show the transition at a higher level. Through the use of place types in the General Plan, the County aims to achieve Loudoun’s vision for a prosperous and inclusive community consisting of great places in a variety of settings.



### What Makes a Place?

Many characteristics of the natural and built environment contribute to an area's sense of place, or the impression a particular place leaves on residents and visitors. These factors include:

- The size, scale, and configuration of the buildings and the spaces between and surrounding them,
- The uses in the buildings (although these may change over time),
- The patterns of activity in the spaces between buildings,
- Views to and from the buildings and spaces, and
- Special details such as historic structures, landscape elements, and public artwork.

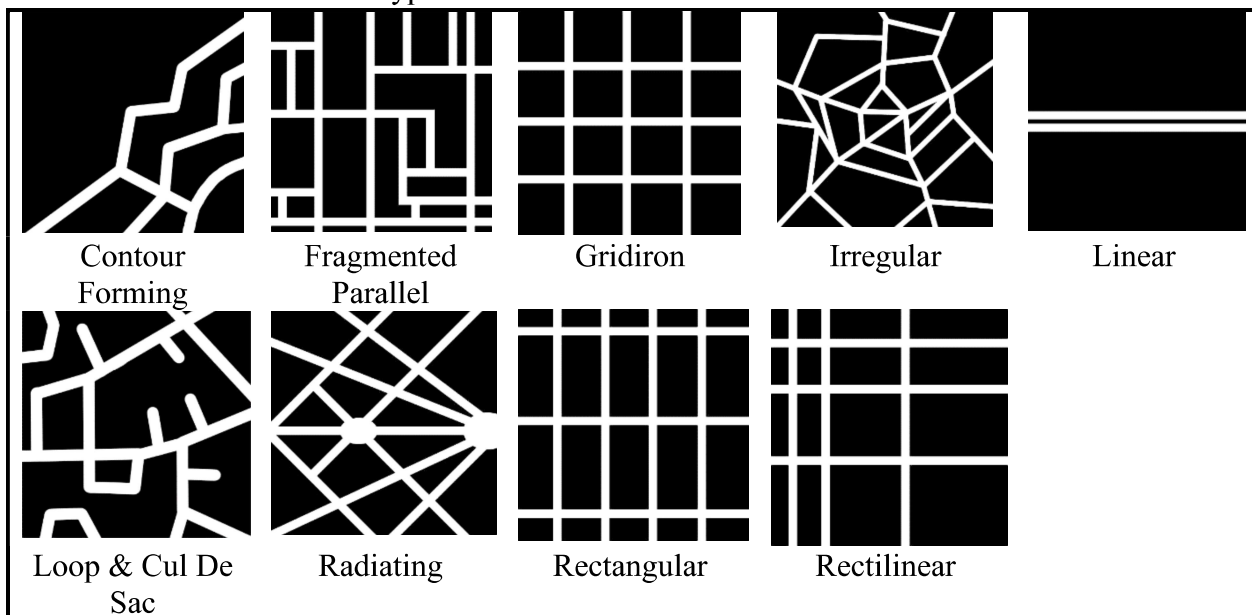
These elements help define a place in our minds and give it a distinct identity. It is this human dimension of place types – their relationship to the way we experience our environment – that makes them such a useful tool in describing the type of development desired in Loudoun County.

### Using Place Types

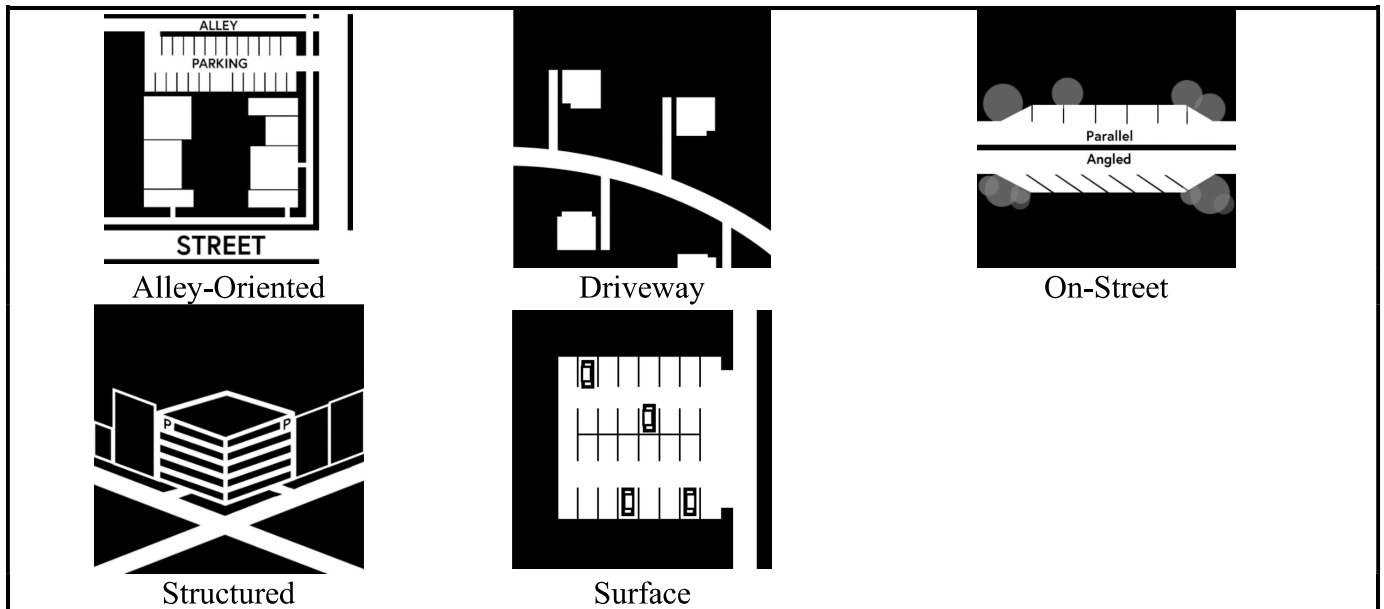
The Place Types described in this chapter have been carefully chosen to complement the current built and natural environment of the County while fulfilling the land use patterns and community characteristics envisioned for each policy area. Place types emphasize form and function in addition to expected land uses. This makes place types especially useful tools to guide future decisions regarding growth and development in each community, taking into account variable priorities such as: economic development, land preservation, protection of natural, environmental, and heritage resources, efficient transportation options, and the provision of public facilities and services.

Each of Loudoun's policy areas is divided into distinct place types that reflect their unique form and character. Collectively, the defined elements of each place type help to ensure that future development creates the desired character and function of each respective policy area. Each policy area section in the Plan provides a detailed description of each corresponding place type, including:

- A summary of the general development pattern, scale, form, function, and how the place type complements or fulfills the larger visions or policies described elsewhere in the Plan
- Use categories expected in the area
  - Including core and complementary uses that will fulfill the intent of the place type
  - Appropriate conditional uses
  - Special Activity and Parks and Recreation are listed as conditional uses in all place types and will be reviewed on a case by case basis
- The expected physical form of each place type in terms of
  - Street pattern—shown below are all configurations that will be found in the Place Types



- Block length consistent with the *Loudoun County 2019 Countywide Transportation Plan*
- Setbacks based on roads and pedestrian features
- Parking
  - Accessory – a parking facility that provides parking for a specific use or uses. The facility may be located on or off the site of the use or uses to which it is accessory.
  - Short-term – lots and/or spaces designed for people who are dropping off and picking up passengers and/or goods.
  - Shared – a parking facility that may have spaces reserved and other spaces open to another use
  - Garage – a building or room, common to single-family residential neighborhoods, used to park vehicles or store items. Garages can be attached to a residence or located in an adjacent standalone building, and are typically accessed via a residential driveway.
  - Shown below are other types of parking:



- Design amenities
  - Including sidewalks, street trees, street furniture, shade trees, bike racks, lighting, crosswalks, plazas, pedestrian malls, network of green space, and public art
- Retail and service
  - Retail commercial development in residential and employment place types will be designed to respond to the particular characteristics of the place type. In residential areas, retail and service uses will be characterized as Neighborhood or Community serving dependent upon the size of the area

being served and the characteristics of the site (i.e. access, location, function). They will be located internal to the areas that they serve and will provide convenience or routine shopping and personal services. Retail and service uses in the employment place types are intended to provide convenient retail and personal services supporting the employment uses and are based on a percentage of the uses they will serve.

- Open space in terms of the following
  - Recreational – for both passive and active recreation
    - Passive - trails (hiking, biking, walking, or equestrian), picnic, community gardens, camping, or fishing areas
    - Active - ballfields, tennis or basketball courts, swimming pools, tot lots, golf courses, dog parks, and other areas for recreational sports and games
  - Community – plazas, playgrounds, pocket parks, gardens, public art, amphitheater
  - Natural, Environmental, and Heritage – forests, stream valleys, wildlife habitats, floodplains and their buffers, steep slopes and ridge tops, meadows, hedgerows, wetlands, heritage resources, and land contributing to the context of heritage resources, which may be incorporated into publically accessible parks and preserves.
  - Agricultural land including fallow land and working lands (agriculture, horticulture, and silviculture)
- The expected development intensity in terms of floor area ratio (FAR) and/or residential density (dwelling units per acre) to better define the anticipated massing, scale, and level of activity expected
- A discussion of how design elements, variations in land use, and changes in density can be applied to ease transitions among different place types and uses, ideally minimizing the need for intrusive screening or other structural mitigation measures

### Place Type Implementation

Place types are not meant to directly parallel use-based zoning districts, but rather are a direct way of connecting the day-to-day experiences and preferences of the community with the more specialized and technical discipline of land use planning. The place types in the General Plan are:

1. Used to describe the desired future condition, environment, and development of our community's places;
2. Mapped similarly to a traditional future land use map and used to guide future development; and
3. Linked to a future comprehensive Zoning Ordinance revision, which will create enhanced design standards and may include new districts that better align with the desired character of the place.



See Appendix A for general place type considerations – prompts that should be considered while devising and developing a project to assess whether a proposal is compatible with the place type and improves the site and its surroundings.

## **Policies, Strategies, and Actions**

Unless otherwise specified, the following Policies, Strategies, and Actions apply countywide.

**QD Policy 1: Provide flexible design guidelines in all policy areas and in priority areas of the County to create more specific design guidelines that encourage innovation and appropriate architectural, site, and landscape design in all development.**

### Strategy

- 1.1. Identify and prioritize areas in the County where more specific design guidelines are desired.

### Actions

- A. Develop user-friendly, illustrative design guidelines. The design elements will promote an overall sense of place through design elements that in-part relate to block size, circulation and connectivity, streetscape and street sections, building form, placement (setbacks), orientation, articulation, parks and open spaces, public and civic uses, landscaping, and sustainability that give a high quality form to the built environment.
- B. Create incentives that provide the opportunity to implement design guidelines.
- C. The County will consider the development of zoning regulations and design standards that implement the design guidelines of this plan and any design guidelines that may be created in the future.

### Strategy

- 1.2. Encourage the submission of site development and architectural guidelines for new developments.

**QD Policy 2: Where appropriate to the Place Type, create compact, walkable development patterns characterized by smaller blocks, shorter distances among uses, inter-parcel connectivity, greater diversity of uses on the same street, and connected open spaces that facilitate social interaction and offer affordable and convenient lifestyles.**

### Strategy

- 2.1. Ensure County guidelines, zoning regulations, and design standards encourage a compact, walkable development pattern in areas where pedestrian activity should be welcomed.

### Action

- A. Develop and implement zoning regulations or design guidelines that support a

compact, walkable development pattern in areas that are appropriate for pedestrian activity.

### QD Policy 3: Provide diverse environments and experiences in all development.

#### Strategy

- 3.1. Ensure that context and development potential are considered by integrating uses with the natural environmental features of the site.

#### Actions

- A. Develop flexible guidelines, regulations, and design standards that support diverse environments and experiences.
- B. Create incentives to ensure a mix of environments and experiences within a development.
- C. Use a design process that integrates natural environmental features into the development.

### QD Policy 4: When appropriate for the Place Type, design spaces to maximize pedestrian, bicyclist, and other multimodal activity, comfort, and convenience.

#### Strategy

- 4.1. Development must ensure pedestrian and bicyclist connectivity and safety in areas appropriate for multi-modal activity while pursuing high-quality design to include establishing easements and right of ways.

#### Actions

- A. Create guidelines, zoning regulations, and/or design standards that ensure bike lanes, shared spaces, and paths of travel are created in areas where multimodal activity should be encouraged.
- B. Create guidelines, zoning regulations, and/or design standards that ensure traffic calming designs.

### QD Policy 5: Ensure greater interaction between activity inside buildings and the public realm where appropriate to the Place Type.

#### Strategy

- 5.1. Ensure that design emphasizes the quality of the pedestrian experience in public spaces within mixed use developments and residential communities.

#### Action

- A. Develop design guidelines, zoning regulations and/or design standards, and additional design elements that contribute to the quality of the human experience in the built environment.

**QD Policy 6: Within mixed use developments and residential communities, promote high-quality design and a mix of uses to encourage activity and longer stays in spaces, in order to create vibrant areas and a sense of place.**

Strategy

- 6.1. Ensure the development of inviting public spaces that encourage longer stays and increase the vibrancy of the area, such as public/civic gathering spaces, outdoor rooms, public art spaces, and passive/active recreation spaces.

Action

- A. Create guidelines that address public seating, art, landscaping, outdoor rooms, safety, and other innovative elements that can maximize opportunities for the public.

**QD Policy 7: Ensure high quality development where the natural and built environment contribute to an area's "sense of place."**

Strategy

- 7.1. Ensure the place types complement the current built and natural environment of the County, while fulfilling the land use patterns and community characteristics envisioned for each policy area.

Actions

- A. The density or development potential of a place type designated for a site will be defined by gross area of the site. Development potential can be transferred within a project to protect natural and cultural features and to meet the design objectives of the place type. When density is based on floor area ratio (FAR), the buildable area as used in the FAR calculation does not include portions of land for roadways, wetlands, floodplains, and buffers.
- B. Structured parking and open space areas are not included within the floor area ratio of a site when assessing it by the designated place type.
- C. The open space requirement for each respective place type will be measured as a percentage of gross area.
- D. The three use lists of a place type are a guide where: core uses are most prevalent in the place type, complementary uses support the core uses, and conditional uses are to be considered on a case-by-case basis.
- E. Follow the preferred mix of uses for each place type which is an approximate amount that would be needed to achieve the full intent of the place type. Allow the use mix of a development to differ from the preferred ranges noted in the place type, when street and open space network, project size, surrounding context or other factor supports flexibility to achieve the development objectives of the Plan.
- F. Amend zoning regulations and design standards to implement place types. It may be necessary to utilize incentive provisions in order to achieve the maximum development

intensity or residential density stated in this Plan for any individual place type.

- G. Within the Urban Policy Area, projects less than 5 acres in size will not be strictly held to the use mix specified for that place type if the effect of the proposed development is to shift the use mix for an area within  $\frac{1}{4}$  mile of its boundaries closer to the preferred mix for the place type. Such projects will be evaluated by Policy 3, Strategy 3.1 in the Infill and Redevelopment section.
- H. Within the Suburban Policy Area, projects less than 20 acres in size will not be strictly held to the use mix specified for that place type if the effect of a proposed development is to shift the use mix for an area within  $\frac{1}{2}$  mile of its boundaries closer to the preferred mix for the place type. Such projects will be evaluated by Policy 3, Strategy 3.1 in the Infill and Redevelopment section.

### Strategy

- 7.2. Consider allowing interim uses that contribute to the community and are planned to efficiently and easily evolve to more intense uses called for by *the Loudoun County 2019 Comprehensive Plan*, when market forces support additional development.

### Actions

- A. Ensure interim development uses, design, locations, ownership, or intensities are not a deterrent or barrier to implementing the long-term community vision for Loudoun County, as well as the policies and objectives of the *Loudoun County 2019 Comprehensive Plan*.
- B. Require projects that are proposing a phased development program or an interim use to commit to a plan that achieves the ultimate development of the site, consistent with the intent of *the Loudoun County 2019 Comprehensive Plan*.
- C. Require development proposals for interim uses to design and build infrastructure, buildings, parking lots, and parks and landscaped areas to support the ultimate, higher density development.
- D. Determine acceptability of interim development phases and land uses against:
  - i. Location, site constraints, relationship to surrounding uses,
  - ii. How well the interim use complements and supports community life and activity of the surrounding development, and
  - iii. How well the project retains the capacity to achieve the ultimate development pattern and meet the policies and objectives of the *Loudoun County 2019 Comprehensive Plan*.
- E. Encourage development in its ultimate condition to rely on structured parking but consider a mix of structured parking, on-street parking, and surface parking as an interim land use.

**QD Policy 8: Development should utilize universal design principles to increase functionality, usefulness, and marketability to persons with diverse abilities.**

Strategy

- 8.1. Promote equitable access to streets, sidewalks, public and private buildings, civic spaces, and transportation facilities.

Actions

- A. Amend zoning regulations and design standards to require the provision of continuous, accessible, step-free paths of travel throughout new employment, retail, and mixed use development proposals.
- B. Amend zoning regulations and design standards to incorporate accessible and inclusive design features into public and civic spaces such as community centers, parks, plazas, and playgrounds.
- C. When reviewing new proposals, favor accessibility features that encourage universality of access and utility as seamlessly as possible.
- D. Review and revise county sign regulations to facilitate signage and way-finding at appropriate heights that incorporate Braille, tactile markings, and other accessibility improvements.

Strategy

- 8.2. Promote the use of universal design features at the site and building level.

Actions

- A. Incentivize the use of design mechanisms that ensure universal functionality within new construction.
- B. Examine the feasibility of establishing a technical and financial assistance program that assists property owners and tenants of older structures in removing impediments to accessibility and incorporating universal design elements into renovation projects.

# Infill and Redevelopment

## Vision

A community where careful public investment in services, facilities, and growth management can maintain neighborhood vitality; reinvest in underused areas; and facilitate complete, connected, and distinct communities.

## Introduction

Loudoun County is a maturing community. For the last several decades, the approach to planning and zoning focused on managing and directing rapid suburban growth to primarily undeveloped land, or greenfields, in eastern Loudoun County – areas designated for growth in the *Revised General Plan*. Today, much of the Suburban Policy Area (SPA) has been developed and there is a limited supply of land remaining for new greenfield development, creating new planning challenges and opportunities in this area.

Some existing neighborhoods, commercial developments, and employment centers are aging or underutilized, and thus vulnerable to disinvestment and decline. Other newer developments that never realized their full commercial potential present additional opportunities for redevelopment. As these maturing commercial centers and neighborhoods evolve over the next two decades, the *Loudoun County 2019 Comprehensive Plan* (Comprehensive Plan) seeks to ensure that they do so in a way that meets the County’s long-term land use, housing, economic development, and public infrastructure goals.

This section focuses on several interrelated concepts that are integral to successful projects and initiatives in previously developed areas: redevelopment, infill, adaptive reuse, and reinvestment. Table 1 provides a definition of each of these terms, the intent and goals of each, and the kinds of locations in the County where their use may be most appropriate. These are not mutually exclusive concepts, and a project or initiative may include elements of one or more of them. Generally speaking, redevelopment describes the conversion of any existing developed property into other uses or a different intensity of use. Adaptive reuse is a form of redevelopment that repurposes existing, oftentimes obsolescent or historically significant structures for new uses. Infill refers to the development of substantially undeveloped or underutilized properties that exist in otherwise built areas with existing or planned infrastructure and service capacity to handle more intensive land uses. Although not a form of redevelopment by definition, infill may be coordinated with redevelopment projects to better realize the planning vision for a particular area, sometimes as a part of a larger reinvestment program. Reinvestment aims to encourage new vitality and economic activity in a community. Reinvestment programs may include smaller-scale redevelopment efforts or infill development, but often feature more targeted programs to improve building facades, beautify streetscapes, and generate investment through incentive-based economic development tools.

**Table 1. Infill and Redevelopment Terms and Concepts**

	<b>Definition</b>	<b>Intent and Goals</b>	<b>Primary Locations</b>
<b><i>Redevelopment</i></b>	The rehabilitation, removal and replacement, or adaptive reuse of existing structures or uses. This includes any development project that significantly modifies an existing developed site resulting in changes to its design, use, and/or intensity. Projects may involve razing existing structures and constructing completely new buildings and may require mitigation or remediation of the impacts of previous uses.	To achieve land uses that are more economically beneficial, more compatible with existing or anticipated surrounding land uses, and align uses with the long-term vision of the Plan.	Any existing built property where conversion to a new use better achieves the economic development, housing, land use, and public infrastructure policies of the Plan.
<b><i>Infill</i></b>	Establishment of a new use on a site that may be undeveloped or underutilized but is located in an area of established, stable development where roads, water, sewer, and general services are available or planned. Infill sites are often small (less than 25 acres), and their development should complement or complete a larger development area.	To optimize infrastructure investments, leverage existing service capacity, and reduce development pressure on areas not designated for growth.	Undeveloped areas otherwise served by public infrastructure and utilities. These may include brownfield and greyfield sites.
<b><i>Adaptive Reuse</i></b>	Repurposing of an existing structure in order to accommodate new uses while preserving the structure. This often involves improving existing buildings to allow for modern design and building program preferences.	To prolong building lifespans, encourage reuse of existing resources, facilitate market alternatives, and encourage preservation of historic structures through appropriate renovation.	Existing buildings where prior uses are obsolete or economically infeasible. Appropriate building stock is in sound structural condition and provides flexibility for retrofitting for new uses. Context-sensitive reuse can be an important tool for preservation of historic structures.
<b><i>Reinvestment</i></b>	Reestablishing the economic and social vitality of an area through a combination of targeted efforts and investments that may be coordinated with redevelopment, infill, and adaptive reuse projects.	To instill vitality and economic activity through small-scale redevelopment, renovation, beautification, and incentive-based economic development tools.	Existing neighborhoods with declining commercial activity but with a baseline of housing or commercial building stock that does not require wholesale redevelopment.

The *Loudoun County 2019 General Plan's* (General Plan) planning approach reflects a greater emphasis on redevelopment of aging areas, infill development on the few remaining undeveloped parcels, and adaptive reuse of existing buildings, complemented with reinvestment initiatives as needed. These types of development bring unique challenges and opportunities inherently different from greenfield development. The policies and implementation steps of this section are intended to support these development types.

## **Opportunities**

With redevelopment, infill development, and adaptive reuse come opportunities. Redevelopment offers communities the opportunity to reimagine underutilized or underperforming sites to create unique places and provide amenities desired by residents. Other redevelopment projects may maximize commercial potential, increasing neighborhood commerce and enhancing property values. Infill development can maximize the use of public investments and existing infrastructure, create opportunities to achieve more cohesive development patterns, encourage reinvestment, and better connect neighboring developments. Adaptive reuse projects can support historic preservation goals, generate activity within vacant buildings and underutilized areas, and preserve iconic or prominent buildings exemplifying community character while maintaining compatibility with the surrounding neighborhood. Each can also provide opportunities to diversify housing stock. However, these projects can upgrade or retrofit older or substandard infrastructure for the site and surrounding area, which generally increases the value of a property and contributions to the tax base.

## **Emerging Reinvestment Issues**

Most of Loudoun County's suburban development is relatively new, but as Loudoun's communities continue to age, County policies and initiatives to support and enhance these neighborhoods and commercial centers will be increasingly important.

The Potomac and Sterling communities are two of the oldest and most diverse communities in Loudoun County. With neighborhood development beginning in the 1960s, the communities are mostly built-out. Housing stock has been in place for approximately 50 years and a need for reinvestment has emerged. The 2007 recession also significantly affected Potomac and Sterling. The largest concentration of foreclosures and subsequent vacancies in the County occurred in these communities, compounding the area's challenges.

Recognizing the need for reinvestment in Potomac and Sterling, the Loudoun County Department of Planning and Zoning undertook a community outreach project in 2008. During the outreach, residents identified needs and desires to help encourage reinvestment areas of the community. Community members expressed concerns that poor neighborhood maintenance created blight conditions and contributed to an increase in crime. Furthermore, residents worried that their neighborhoods lacked law enforcement personnel, neighborhood volunteer watch groups, and teen programming. The General Plan's more flexible, incentive-based regulatory approach is intended to encourage private interests to undertake a range of context-sensitive redevelopment, infill, and



reinvestment projects with support from County programs and targeted planning and community outreach efforts.

In recent years, Loudoun County undertook certain recommendations originating from the Potomac and Sterling community outreach project. To address the foreclosure issue and the deterioration of housing, the County made considerable investment of Community Development Block Grants (CDBG), tax dollars, and Neighborhood Stabilization funds; provided grants to non-profit housing providers to purchase and renovate homes to sell to low and moderate income families; and provided direct loans and grants to qualified residents through several programs. The County also revised the Zoning Ordinance to address community aesthetics, began proactive code enforcement, and established a full service Eastern Loudoun Sheriff's Substation in Sterling Park.

As other neighborhoods continue to mature, the County will look to emulate and improve upon past public engagement efforts and collaborative planning solutions. It is important, however, that the County considers the diverse needs, desires, and vision of each affected area. Some smaller scale projects, such as incorporating a mix of residential and new retail uses into a declining strip commercial center, may be appropriately handled through the rezoning process, which provides for public hearings before the Board of Supervisors and Planning Commission. Larger scale infill or redevelopment projects that are likely to displace large numbers of business or residential tenants may warrant a more in-depth, collaborative public input process. The Policies, Strategies, and Actions of this section are intended to clarify the County's interest in redevelopment and reinvestment and the planning tools and processes available to encourage and shape these efforts.

## Challenges

Redevelopment, infill development, and adaptive reuse projects may also face or present different challenges than greenfield developments, including:

- Land development regulations that are generally designed to guide greenfield development and lack the flexibility needed to facilitate redevelopment, adaptive reuse, or infill development projects.
- Redevelopment sites and adaptive reuse projects may require infrastructure improvements and experience other fiscal challenges that result in costlier projects than greenfield development.
- Sites that are often owned or leased by multiple entities, making it difficult to craft a unified vision and project.
- Potential opposition from the community for redevelopment, infill development, and adaptive reuse projects.
- Redevelopment projects that may displace populations because market-provided affordable housing is demolished or rents and property taxes increase due to the new development.
- Redevelopment projects that may displace established employment uses, adversely affecting the diversity of the County's commercial tax base.

Considering the complexity of challenges related to these projects, developing a community vision that anticipates redevelopment, infill development, and adaptive reuse projects is critical. The County should take a leading role in developing this community vision by identifying and prioritizing areas that would benefit from redevelopment and reinvestment, and by conducting proactive planning efforts to establish this vision. In addition, Loudoun County should require developers to consider and include community input for significant infill and redevelopment projects, especially those that are most likely to displace established residents and tenants. A community vision endorsed by the locality provides assurances to both developers and the community. It also identifies the locality’s role in advancing such projects.



*Addison McDonald residential development is an example of infill development in Brambleton. Two parcels, each with a residence, and totaling approximately 7 acres will be developed with 39 townhouses surrounding a village green and will be annexed into the neighboring Homeowners Association (HOA).*



*Lucketts Community Center. Loudoun County has adaptively reused several historic schools for community centers in rural villages, providing gathering places while protecting iconic buildings and community character.*

Redevelopment, infill development, adaptive reuse, and reinvestment projects within the County should result in great places that complement, strengthen, and benefit surrounding communities. Such projects should enhance the quality of life and help build a strong sense of community, where people feel connected to each other and to places that are expressions of community character. The following Policies, Strategies, and Actions of the General Plan will foster this vision of compatible infill development within existing neighborhoods, and quality redevelopment and reinvestment of

aging or underutilized commercial and employment areas. They encourage efficient use of land and maximizing the use of existing infrastructure, public facilities, and community amenities, while benefiting established communities and alleviating development pressure outside of planned growth areas.

## **Policies, Strategies, and Actions**

Unless otherwise specified, the following Policies, Strategies, and Actions apply countywide.

**IR Policy I: Ensure reinvestment initiatives and redevelopment, infill development, and adaptive reuse projects will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities.**

### Strategy

- 1.1. Where infill development, redevelopment, and reinvestment initiatives could affect established neighborhoods, facilitate community engagement to address County and community concerns and build support for future projects.

### Actions

- A. Develop criteria to identify and prioritize areas for redevelopment, infill development, adaptive reuse, and reinvestment, with the Priority Commercial Redevelopment Areas Map serving as the source for initial areas of focus.
- B. Create a common vision and objectives for areas identified for redevelopment, infill development, adaptive reuse, and reinvestment through a public process.
- C. Address redevelopment, infill development, adaptive reuse, and reinvestment as part of community plans. Pay particular attention to a community's historic assets and function in areas with under recognized historic resources or limited historic resources protections, such as the legacy village cores of Ashburn, Arcola, and Old Sterling (see Legacy Village Cores Map).
- D. Identify methods for ensuring developers will follow through on commitments to communities that are products of a facilitated engagement process between the developer and the surrounding neighborhoods and developments.
- E. Evaluate the creation of overlay districts to encourage reinvestment in priority/targeted areas where there is community support and buy-in.

### Strategy

- 1.2. Support projects that provide community amenities, fulfill community needs, and benefit the surrounding communities.

### Actions

- A. Conduct analysis of local market demands to determine what is needed to foster successful redevelopment.
- B. Identify priority redevelopment areas and targeted strategies through the community planning process.

- C. Ensure residential and mixed-use projects increase and diversify housing opportunities when in conformance with other Plan policies.
- D. Require redevelopment projects to replace, at a minimum, market-provided affordable units lost through a redevelopment process.
- E. Develop strategies to address displacement and housing affordability, when redevelopment occurs.
- F. Require the provision of comparable community amenities to any lost through a redevelopment process.
- G. Encourage annexation of residential projects into adjoining homeowners' associations (HOAs) to make the provision of amenities more economical.
- H. Develop criteria, such as site constraints, important resources, and community amenity gaps, to identify infill sites appropriate for use as park, civic, and open space rather than private development.
- I. Promote the development of interim uses on underutilized properties that are compatible with the surrounding development pattern, such as community gardens, playgrounds, park-and-ride lots, and farmer's markets

Strategy

- 1.3. Enhance established residential communities specifically in need of reinvestment through methods that will not involve a redevelopment project.

Actions

- A. Identify and prioritize neighborhoods with an emerging need for reinvestment and work with these communities to identify needs and desires and build support for reinvestment.
- B. Identify strategies to preserve and enhance a community's sense of place, social fabric, and historic assets and functions.
- C. Identify, and include in the Capital Budget, capital facilities improvements necessary to support reinvestment in targeted areas.
- D. Identify and utilize funding sources for community reinvestment strategies.
- E. Educate the community about funding sources for home improvement and repair.
- F. Facilitate the provision of community amenities, such as pedestrian/bicycle facilities, sidewalks, traffic calming, street lighting, bus stops, cultural centers, and community gathering places.
- G. Develop incentives that encourage the private sector to improve retail and commercial establishments in targeted areas.
- H. Provide resources for community-based initiatives, such as neighborhood volunteer watch groups and teen programming.

Strategy

- 1.4. Facilitate redevelopment, infill development, and adaptive reuse projects through technical assistance, an improved regulatory framework, and streamlined review processes.

Actions

- A. Provide general project guidance, such as best practices, tool kits, examples of “approvable” development types, and profiles of successful projects.
- B. Develop and maintain a redevelopment webpage with information and resources for residents and developers.
- C. Develop flexible zoning regulations and design standards that account for existing conditions, allow for creative design and emerging development types, and provide certainty and clear direction for developers.
- D. Develop creative incentive programs for projects located within the priority areas for redevelopment identified on the Priority Commercial Redevelopment Areas Map and other qualifying projects, such as increases in permitted density where infrastructure is available, reduced fees, or expedited review processes.

Strategy

- 1.5. Incentivize redevelopment, infill, and adaptive reuse projects, and reinvestment efforts in priority areas to be established by the County, using the Priority Commercial Redevelopment Areas Map to determine initial priority areas.

Actions

- A. Evaluate and implement the use of fiscal tools to incentivize redevelopment, such as tax increment financing (TIF) and public improvement districts (PID).
- B. Evaluate entering into public-private-partnerships to initiate redevelopment and adaptive reuse efforts and reduce development risks in priority areas.
- C. Direct public investment and resources to priority areas to facilitate redevelopment.
- D. Establish programs to assist in business retention, expansion, and recruitment when commercial redevelopment projects occur.

Strategy

- 1.6. Achieve unified site design, efficient use of existing infrastructure, and maximum land development potential through the consolidation of small, adjacent, underutilized properties.

Actions

- A. Facilitate redevelopment of multi-ownership sites through a planning process that engages owners and the larger community in the creation of a shared vision for the area.
- B. Create incentives for parcel assembly and funding opportunities for infrastructure improvements associated with redevelopment projects to alleviate private sector risk and costs.

Strategy

- 1.7. Ensure that projects proposed for eastern Loudoun’s legacy village cores – including Ashburn, Arcola, and Old Sterling – complement the scale, form, and historic land use patterns of these areas (see Legacy Village Cores Map).

Actions

- A. Develop zoning regulations and design standards that emulate existing lot patterns in the village cores of Ashburn and Arcola with buildings oriented to the street, encouraging pedestrian activity.
- B. Develop zoning regulations and design standards that promote a mix of land uses including residential, retail, office, institutional, public facilities, parks, playgrounds and other uses in the village cores where such uses do not otherwise conflict with existing uses or anticipated noise impacts from Washington Dulles International Airport.
- C. Develop or maintain zoning regulations and design standards for the legacy village core of Ashburn that limit residential densities to four (4) units or fewer per acre.
- D. Develop zoning regulations and design standards that limit commercial, flex, or industrial building footprints to 10,000 SF and building heights to three (3) stories.
- E. Develop zoning regulations and design standards that discourage new automobile-oriented retail uses in the village cores.
- F. Where compatible with surrounding land uses, allow residential or mixed-use development in areas of the Arcola village core that fall outside the Ldn (day-night average noise level) 65 or higher aircraft noise impact area of Washington Dulles International Airport, applying the standards of the Suburban Neighborhood Place Type.
- G. Encourage residential development above first floor retail or employment uses in the village cores.
- H. Use the community planning process to develop a unified planning vision and targeted implementation actions for Ashburn, Arcola, and Old Sterling.

Strategy

- 1.8. Promote the retention or development of small-scale industrial, employment, and manufacturing uses in order to promote local provision of jobs and services and maintain a diversified commercial tax base.

Actions

- A. Develop zoning regulations and design standards that discourage the displacement of legacy flex, industrial, and employment uses by new large-scale uses.
- B. Develop zoning regulations and design standards that expand opportunities for small-scale manufacturing in place types allowing flex, light industrial, industrial, and employment uses.
- C. Amend zoning use definitions in industrial, flex, and employment-centered zoning districts to accommodate makerspaces, emerging small-scale manufacturing sectors,

and the marketing and retail of goods produced on-site.

**IR Policy 2: Recognize adaptive reuse of existing unused or underutilized buildings as an opportunity to establish or reinforce a community's identity and sense of place.**

Strategy

- 2.1. Support adaptive reuse projects that provide cultural activities and community gathering places.

Actions

- A. Use the *Heritage Preservation Plan* to guide the adaptive reuse of historic resources.
- B. Establish collaborative programs and partnerships for adaptive reuse projects to foster entrepreneurship and encourage innovative ways to reuse buildings and sites.

Strategy

- 2.2. Prioritize adaptive reuse of existing buildings with historic significance or importance to a community over demolition.

Action

- A. Consult with communities to ensure all unused or underutilized buildings representing their history and character are identified, protected, and adaptively reused.

Strategy

- 2.3. Revise County regulations to accommodate creative adaptive reuse designs.

Action

- A. Review zoning regulations, design standards, and building code regulations to identify regulatory encumbrances to adaptive reuse projects.
- B. Develop zoning regulations and design standards that provide ample flexibility for adaptive reuse projects without compromising the health, safety, or welfare of users.

**IR Policy 3: Promote redevelopment and infill projects that balance compatibility and integration with new housing choices and creative designs.**

Strategy

- 3.1. Redevelopment and infill projects will be evaluated based on compatibility and the integration of the development within the context of the surrounding development patterns.

Actions

- A. Ensure redevelopment and infill development is compatible with the surrounding development. As appropriate, elements of the Place Types should be incorporated to the fullest extent possible.
- B. Ensure residential development on infill sites is designed to fit into the surrounding context.

# Urban Policy Areas

## Vision

The Urban Policy Areas (UPA) will be the target area for much of Loudoun’s future growth in the immediate future. UPA communities will accommodate living, working, shopping, learning, and playing in dense urban environments of walkable mixed use and transit oriented development. These areas will possess high-quality public environments with accessible and connected places, and a rich mix of uses that establish a distinctive sense of place. UPA communities are envisioned to support development types, patterns, and densities that will create jobs, grow the tax base, and be fiscally sustainable.

## Introduction

The new UPAs are planned and designed to be strong, diverse regional activity centers and economic drivers. As such, UPAs will provide new opportunities for regional employers to locate near complete urban communities with multiple transit options and access to Washington Dulles International Airport. The UPA has been in the making since the *Toll Road Plan*, with transit-oriented nodes and then building upon them in the *Revised General Plan* with Transit-Oriented Development areas in the Suburban Policy Area. The UPAs encompass areas around three Metrorail Stations: Innovation Center (in Fairfax County), Loudoun Gateway, and Ashburn (for reference, see Urban Policy Areas Place Types map). The areas around the Metrorail Stations are envisioned as transit-oriented communities with a dense urban core consisting of the greatest intensity of development in the County. These areas emphasize mixed-use development throughout and are the highest priority growth areas in the County. Due to their current suburban nature, the process of transitioning these areas to walkable communities may involve partial infill and redevelopment as described in the Infill and Redevelopment section of this chapter.

The expansion of Metrorail service into Loudoun County presents an unprecedented opportunity to create dynamic urban places that respond to the community’s evolving needs and demands. The *Loudoun County 2019 Comprehensive Plan* (Comprehensive Plan) integrates multimodal transit options with high quality urban and environmental design guidelines to shape livable, vibrant, and active UPA neighborhoods with a balance of business, commercial, and residential uses. The UPA communities will provide a variety of housing choices that offer diverse options for families, empty-nesters, individuals, couples without children, and seniors across socioeconomic groups, helping to provide the housing continuum described in Chapter 4. They will be communities that are rich in amenities including networks of publicly accessible green spaces, such as the Broad Run Stream Valley Park and Trail, that simultaneously protect valuable environmental resources.

## Development Approach

The *Loudoun County 2019 General Plan’s* (General Plan) design policies and guidelines recognize that urban form is essential to creating places that are functional and attractive to a diversity of users. Urban design characteristics in the UPA speak to the design of individual structures and spaces, the spatial relationship among structures, the relationship of buildings to the streetscape



and other public places, and transitions between areas of differing densities or intensities. Building façades set at the back of the sidewalk and ground floor retail uses with transparent façades will help activate the streetscape. The guidelines also encourage the development of distinctive public places that promote culture and the arts. Street furniture, public art, water features, and distinctive landscaping will create visually appealing streetscapes that encourage street-level activity and public interaction.

All UPA communities will include transportation hubs that offer a wide array of transportation mode choices including walking, biking, driving, and transit. The UPA is a place where walking and bicycling can be convenient travel modes, diversity of use is nurtured, and public places are aesthetically pleasing, safe, and accessible. Attractive grid-form street networks will prevent traffic congestion, maximize travel choices, and safely and efficiently move individuals throughout the area. Small, tree-lined blocks will enhance the pedestrian experience and encourage non-vehicular travel. Contiguous, linear green spaces that accommodate both passive and active recreation will encourage alternative means of travel.

The Comprehensive Plan envisions a certain level of activity and intensity of development in the UPAs, which is necessary not only to create vibrant, viable transit-oriented communities, but also to protect their long-term tax revenue generation potential. Therefore, land uses that do not meet the minimum bulk and/or density guidelines envisioned in the UPA Place Types should be avoided. Interim uses may be appropriate, if it can be demonstrated that they will evolve to an ultimately desired use that aligns with the long-term vision of the General Plan.

The County's ongoing collaboration with the Metropolitan Washington Airports Authority (MWAA) regarding future land use planning around Washington Dulles International Airport's northern border is essential to the success and economic viability of the Loudoun Gateway Metrorail Station. The County will continue its partnership with MWAA and explore mutually beneficial land use alternatives that realize greater tax revenue while supporting current and planned airport operations. This collaborative planning will ensure that the Loudoun Gateway Metrorail Station develops as a walkable place with job opportunities, amenities, pocket parks, transit options, and nearby housing without compromising Washington Dulles International Airport's long-term viability.

## **Policies, Strategies, and Actions**

Unless otherwise specified, the following Policies, Strategies, and Actions apply only within the UPA.

**UPA Policy I: Ensure walkable development and connectivity to the community throughout the UPA as it is important to foster the urban character found in the Place Types.**

Strategy

- 1.1. Development designed to provide for a walkable mixed-use environment that supports multi-modal transportation choices and fosters substantial pedestrian activity within the half-mile area and to surrounding areas.



Strategy

- 1.2. Support walkability in the half-mile buffer area by providing pedestrian and bicycle commuter connectivity to the core of the Metrorail stations and surrounding neighborhoods as well as enabling future connections from undeveloped parcels.

Strategy

- 1.3. Support a high level of pedestrian connectivity including connected street grid patterns with sidewalks, short block lengths, and connected trails and pathways providing connections to surrounding neighborhoods.

Strategy

- 1.4. The Ashburn and Loudoun Gateway Metrorail Stations will serve as transit and commuter hubs while providing an urban walkable environment. Development proposals provide a balance between the needs of commuters with the desire to create a walkable urban environment.

Strategy

- 1.5. Accommodate a long-term vision with an appropriate mix of residential and non-residential uses that fulfill daily needs and convenience of its residents and employees.

Actions

- A. Mixed-use neighborhoods should accommodate infrastructure plans for near-term and long-term transit circulator service.
- B. Community facilities like schools, community centers, and libraries should be located to allow as many residents as possible to be within a short walking distance.
- C. Larger developments should provide pedestrian access within their development and possible shuttles to connect to the Metrorail stations.

Strategy

- 1.6. Discourage single-story buildings in the UPA to promote compact, pedestrian-oriented spaces except when such buildings are integrated into a plaza or other public gathering space and are no larger than 2,000 square feet.

Strategy

- 1.7. Ensure that any drive-through retail uses are incorporated within mixed-use buildings.

## UPA Policy 2: Provide dynamic and diverse public places and amenities within proposed UPA communities.

### Strategy

- 2.1. Densities in the area are expected to sustain an urban development pattern with pedestrian activity.

### Strategy

- 2.2. The County should promote concepts like outdoor dining, event space, street fairs, and public art within compact, walkable non-residential areas.



### Action

- A. Development design should accommodate walkable features and amenities like centralized activity areas such as shopping and dining areas with wide sidewalks, more narrow pedestrian-oriented streets, transit stops, and community gathering places (e.g., parks and plazas).

## UPA Policy 3: Provide a diverse mix of choices in all development.

### Strategy

- 3.1. Accommodate office developments and/or high-employment generating uses that conform to the overall vision for a walkable urban development pattern.

### Action

- A. Create partnerships with universities and private sector companies to foster growth of an Innovation District at the Loudoun Gateway Metrorail Station that supports workers and students in the advanced technology and science industries.

### Strategy

- 3.2. Ensure that development within a half-mile of the Loudoun Gateway Metrorail Station reflect the General Plan's and station area's long-term vision of a global destination, activity center, and leader in innovation and entrepreneurship.

### Strategy

- 3.3. Accommodate diverse housing options in all development.

### Action

- A. Achieve smaller average unit sizes for residences within the urban area.

## Design Guidelines

The Design Guidelines are to build upon our current high standard of development in a manner that allows innovative design and new responses to the market. The Design Guidelines are not

meant to be prescriptive and are not intended to be treated as a checklist, but are instead meant to provide a framework for how the desired character of the UPA can be achieved, with the acknowledgement that other methods could achieve the intended results. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, proffers, or any other design standards or regulations administered by Loudoun County.

All applications for development in the UPA are expected to include project specific design guidelines, site plans, illustratives, landscape plans, building elevations, and other similar graphics that demonstrate consistency with the UPA Design Guidelines and planning principles in this document.

When using the guidelines, make sure to analyze the impact that a potential development may have on the landscape, considering not only appearance, but practical considerations such as proximity to utilities, community amenities, jobs, and housing, in order to maximize the use of existing infrastructure and reduce travel distances. Development should contribute to creating places within the UPA by working with existing topography and site features, responding to the local context, and reinforcing the compact walkable character, rather than simply attempting to place suburban design onto the urban landscape.

***The goals of the UPA Design Guidelines are to:***

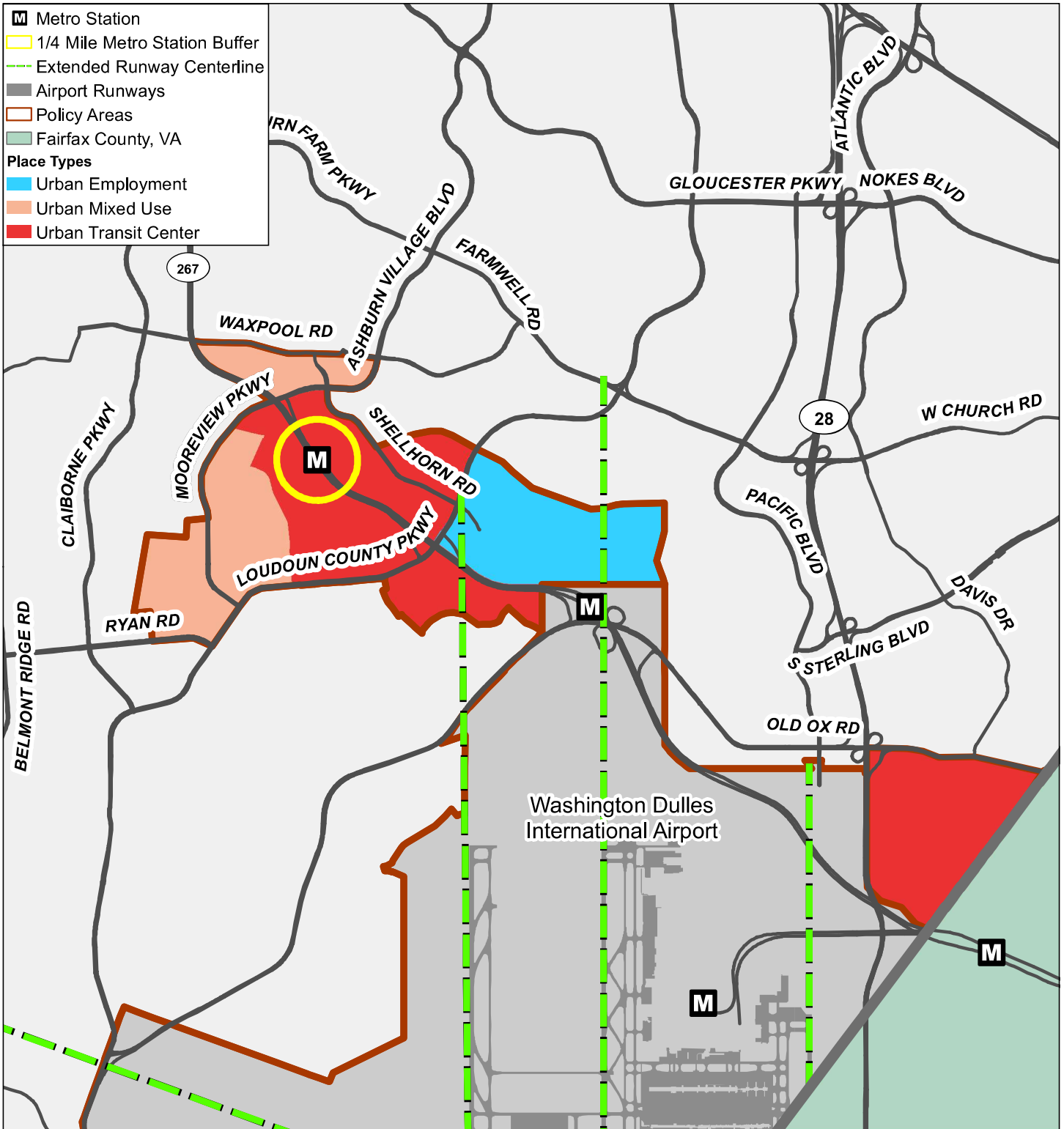
- Promote accessibility and establish links to transit,
- Promote walkability,
- Encourage human activity between buildings and streets,
- Establish “human scale” of buildings at street level (first floor of a multi-story building),
- Create visually compatible buildings and site designs that use building form, materials, fenestration, repetition, rhythm, color, and architectural variety to foster the blending of form, volumes, textures, and colors in the various neighborhoods,
- Create inviting spaces for varied activities, and
- Create a sense of place and uniqueness.

(See Appendix A for Design Guidelines for the UPA)

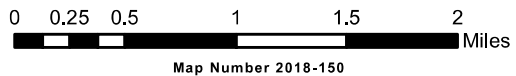
## **Place Types**

As described in the beginning of this chapter, the following Place Types have been designated for specific locations as displayed on the accompanying map. The Place Types will work in concert with the Design Guidelines and Policies, Strategies, and Actions of the UPA to fulfill the land use patterns and community characteristics intended for the area.

Loudoun County  
**Urban Policy Areas**  
**Place Types**  
 2019 General Plan



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



# Urban Transit Center



Urban Transit Center areas take advantage of proximity to transit to provide opportunities for dense urban development and a host of economic, entertainment, and community activities. Each area serves as a gateway to the County from the greater region and as a major destination in its own right. The Urban Transit Center has two focus areas: within ¼ mile of the Metrorail Station and outside of ¼ mile. Development within a ¼ mile of the station will have smaller average unit sizes, a higher minimum FAR, and a more equal mix of residential and non-residential development. Multifamily Residential is the only residential use listed for this place type and is envisioned only as apartments and residential condominiums.

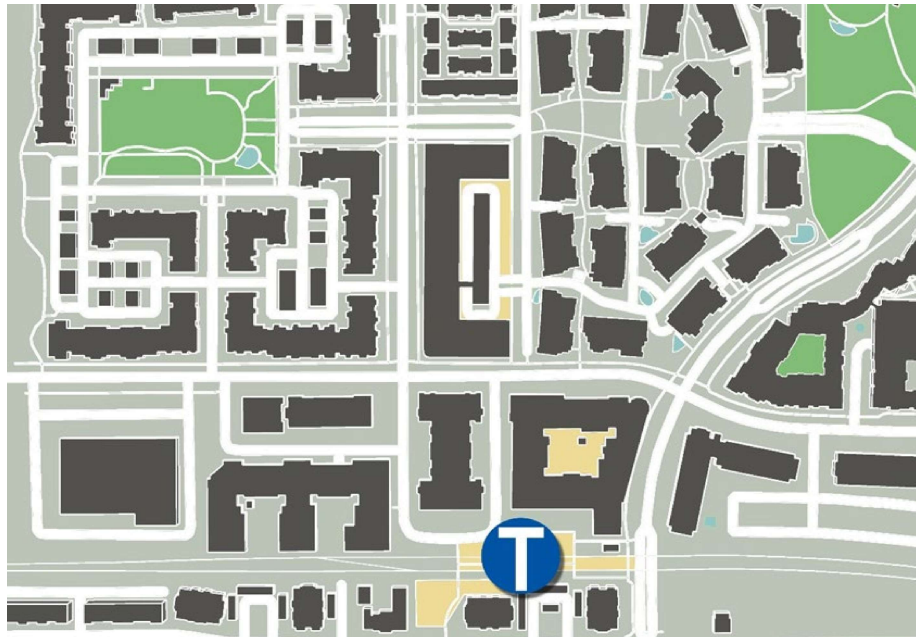
Core Uses	Complementary Uses	Conditional Uses	
<ul style="list-style-type: none"> <li>Multifamily Residential</li> <li>Office</li> <li>Retail &amp; Service Commercial</li> </ul> <p><small>*Residential restrictions in noise-sensitive areas located within 65 Ldn noise contours</small></p>	<ul style="list-style-type: none"> <li>Entertainment Commercial</li> <li>Civic, Cultural, &amp; Community</li> <li>Public Facilities</li> </ul>	<ul style="list-style-type: none"> <li>Sports Arena/Training Facility</li> <li>Conference Center</li> <li>Full Service Hotel</li> <li>Institutional</li> <li>Special Activities</li> <li>Parks &amp; Recreation</li> </ul>	
Preferred Mix of Uses			
<p>Within ¼ Mile</p> <p>Possible Ranges:</p> <ul style="list-style-type: none"> <li>Res: 40-60%</li> <li>Non-Res: 40-60%</li> <li>Public/Civic: 5%+</li> </ul>		<p>Outside ¼ Mile</p> <p>Possible Ranges:</p> <ul style="list-style-type: none"> <li>Res: 60-80%</li> <li>Non-Res: 20-40%</li> <li>Public/Civic: 5%+</li> </ul>	

## DESIGN CHARACTERISTICS

### Context

Vertically mixed-use buildings that are integrated in a walkable street pattern around the Metro station.

<p><b>Street Pattern:</b> Gridiron</p> <p><b>Block Length:</b> Within ¼ Mile: 200-400 feet* Outside ¼ Mile: 200-660 feet* *When measuring block lengths, pedestrian walkways through the development will be used to mark the start or terminus of a block</p> <p><b>Building Setback:</b> None to shallow</p> <p><b>Parking:</b> Structured, on-street, accessory, short-term, alley-oriented</p> <p><b>Design Amenities:</b> Sidewalks, street trees, street furniture, shade trees, bike racks, lighting, crosswalks, plazas, pedestrian malls, network of green space, public art</p> <p><b>Open Space:</b> 10% of the site - Recreational (Active &amp; smaller scale Passive), Community, and/or Natural, Environmental, and Heritage</p>
---



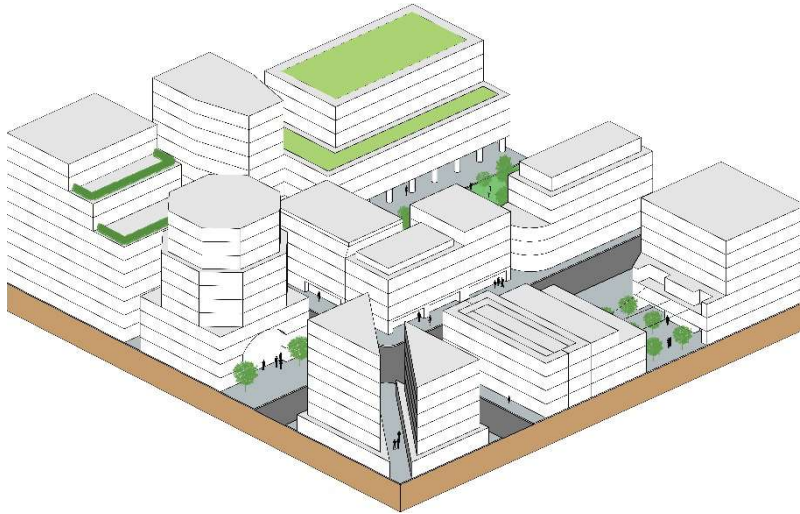
*An example plan view of Urban Transit Center*

**Place Type Rendering**

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Within ¼ Mile**

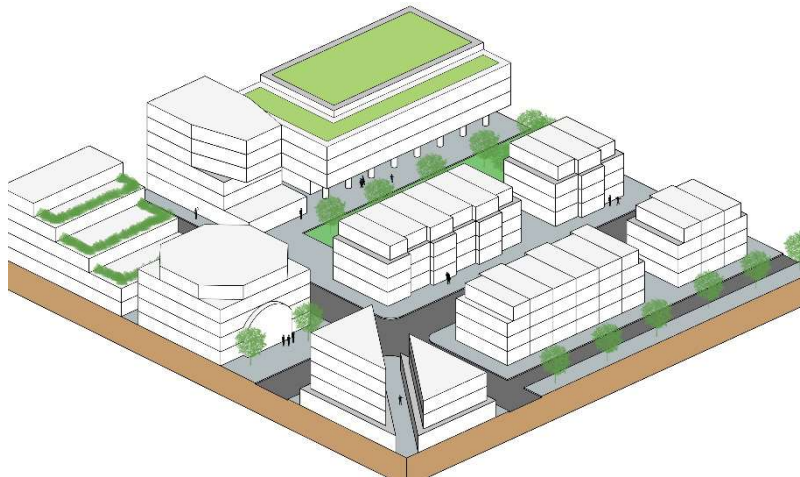
**Total FAR: Minimum 2.0**



USE	Number of Stories (Average height is 12 feet)
Multi-Family Residential	8+
Office	8+
Retail & Service Commercial	8+
*Buildings must not adversely affect airport operations. Maximum building heights must not create flight obstructions or otherwise impede flight operations at Dulles Airport.	

**Outside ¼ Mile**

**Total FAR: Minimum 1.4**



USE	Number of Stories (Average height is 12 feet)
Multi-Family Residential	6+
Office	6+
Retail & Service Commercial	6+
*Buildings must not adversely affect airport operations. Maximum building heights must not create flight obstructions or otherwise impede flight operations at Dulles Airport.	

**Transition**

Given the small block sizes and mix of different uses, transitions between uses and developments are critically important in the Urban Transit Center Place Type. Development should transition from eight stories or more near the Metrorail Station to six or more stories outside of the ¼ mile. Development outside of the ¼ mile of the station may have a lower FAR minimum and lower building height minimum when considered as a transition area between existing residential neighborhoods and sites proposed for redevelopment. Changes in height or building character, where allowed, should occur mid-block to promote balanced streetwalls where both sides of the street appear similar in height. Larger developments near smaller residential dwellings should step down appropriately to respect these neighbors.



# Urban Mixed Use



Urban Mixed Use areas take advantage of their fringe proximity to the Metro stations to provide opportunities for dense urban residential development with a mix of commercial uses. The Urban Mixed Use areas will develop as high-density walkable urban neighborhoods that encourage social connections because their mix of uses, multimodal infrastructure, and public spaces create vibrant public realms.

Urban Mixed Use areas provide opportunities for a mix of housing types that meet the housing needs for all ages, abilities, and socioeconomic groups. Multifamily residences, townhouses, duplexes, triplexes, quadruplexes, and small-lot patio homes are designed to fit within or adjacent to a traditional single-family style neighborhood. Accessory residential units are also appropriate for the area and may consist of apartments in the principal structure, garage apartments, or other outbuildings approved by the County. Development will have slightly larger average unit sizes than in the Urban Transit Center and a large amount of residential development. Small scale office, retail, and service uses should be integrated into the neighborhood.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Multifamily Residential</li> <li>• Single Family Attached Residential</li> </ul> <p><small>*Residential restrictions in noise-sensitive areas located within 65 Ldn noise contours</small></p>	<ul style="list-style-type: none"> <li>• Office</li> <li>• Retail &amp; Service Commercial</li> <li>• Active Adult Retirement Communities</li> <li>• Civic, Cultural, &amp; Community</li> <li>• Institutional</li> <li>• Entertainment Commercial</li> </ul>	<ul style="list-style-type: none"> <li>• Public Facilities</li> <li>• Accessory Residential Units</li> <li>• Small Lot Single Family Detached Residential</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

### Preferred Mix of Uses

Possible Ranges:

- Res: 70-90%
- Non-Res: 10-30%
- Public/Civic: 5%+

Use Type	Percentage
Residential	80%
Non-Residential	15%
Public/Civic	5%

This Place Type encompasses a wide array of commercial designs that create a unique sense of place and complement surrounding developments. Urban Mixed Use developments are oriented toward the street, and those with larger format retail commercial establishments should also include smaller commercial establishments without substantial surface parking lots. These developments should be designed to provide direct access to adjacent neighborhoods with which they blend seamlessly. Parking should be predominantly structured with accommodations for on-street parking and limited surface lots.

## DESIGN CHARACTERISTICS

### Context

Vertically mixed use buildings as well as multi-story single-use buildings that are integrated in a walkable street pattern in the fringe of the Metro station area.

<p><b>Street Pattern:</b> Rectilinear, Gridiron</p> <p><b>Block Length:</b> 200-660 feet</p> <p><b>Building Setback:</b> Shallow setbacks at sidewalks, Residential can be setback near sidewalk</p> <p><b>Parking:</b> Structured, on-street, accessory, short-term, alley-oriented parking</p> <p><b>Design Amenities:</b> Sidewalks, street trees, street furniture, shade trees, bike racks, lighting, crosswalks, plazas, pedestrian malls, network of green space, public art</p> <p><b>Open Space:</b> 10% of the site - Recreational (Passive, Active-dog parks, tennis or basketball courts, tot lots), Community, and/or Natural, Environmental, and Heritage</p>
---



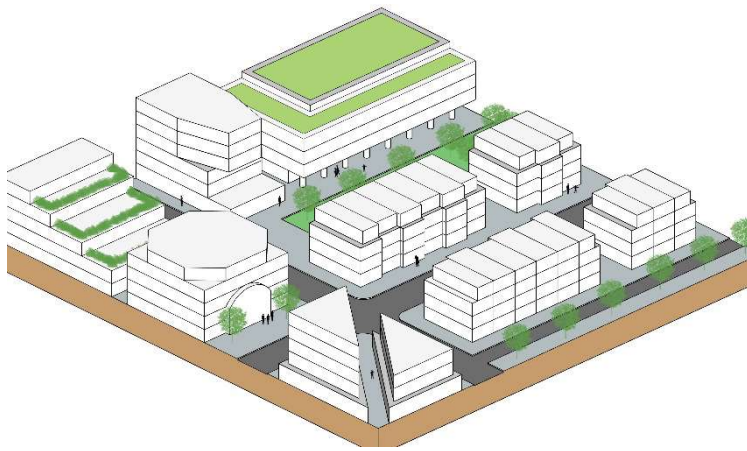
*An example plan view of Urban Mixed Use*

**Place Type Rendering**

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total FAR: Maximum 1.5\***

\*Additional density (up to 2.0 FAR) may be achieved through the provision of one or more of the following project elements that go above and beyond required development standards to further the County’s comprehensive planning goals: affordable housing units, building techniques that exceed industry energy efficiency standards, additional community amenities and pedestrian connections, and/or beneficial revitalization/redevelopment in priority areas.



USE	Number of Stories
Multi-Family Residential	4-8
Single Family Attached	2-4
Office	4-8
Retail & Service Commercial	4-8

**Transition**

Small block sizes and a mix of different uses make transitions between uses and developments important in the Urban Mixed Use Place Type. Changes in height or building character, where allowed, should occur mid-block to promote balanced streetwalls where both sides of the street appear similar in height. Larger developments near smaller residential dwellings should step down appropriately to respect these neighbors. Developments should transition from taller buildings at the center to heights generally no more than a story taller than adjoining adjacent development consisting of less intensive uses. The predominant residential use type is multi-family and single family attached; however, a very limited portion of the development within the Urban Mixed Use Place Type may be developed with small-lot single family detached residential as a transitional use between Place Types.

# Urban Employment



Urban Employment areas provide opportunities for a broad array of employment uses within an environment that provides gathering spaces and opportunities for synergies among businesses. These offer prime locations for office and flex space uses as well as startups and established businesses. Appropriate uses do not generate excessive noise or air pollutants or require outdoor storage. First floor retail that supports predominant uses is appropriate.

Parking should generally be located behind the building to ensure that buildings are the predominant visual feature when viewed from roadways and adjacent properties.

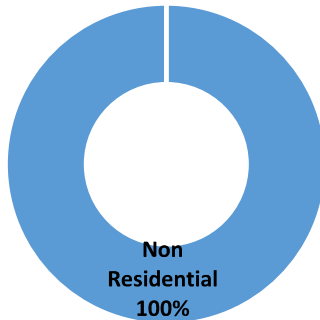
Although civic or recreation space is not expected, required open space in Urban Employment developments should include areas for use by customers and employees.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Office</li> <li>• Research &amp; Development</li> <li>• Data Centers</li> </ul>	<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial</li> <li>• Entertainment Commercial</li> </ul>	<ul style="list-style-type: none"> <li>• Flex Space</li> <li>• Institutional</li> <li>• Civic, Cultural &amp; Community</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

### Preferred Mix of Uses

Possible Ranges:

- Res: 0%
- Non-Res: Up to 100%
- Public/Civic: 0%+



## DESIGN CHARACTERISTICS

### Context:

Separate and mixed employment uses that are integrated within a walkable, employment-based environment.

#### Street Pattern:

Rectilinear, Gridiron

#### Block Length:

300-800 feet

#### Building Setback:

Short to medium

#### Parking:

Structured, on-street, accessory, or short-term

#### Design Amenities:

Sidewalks, street trees, shade trees, bike racks

#### Open Space:

10% of the site - Recreational (trails), Community (outdoor seating, plazas, gardens, public art), and/or Natural, Environmental, and Heritage

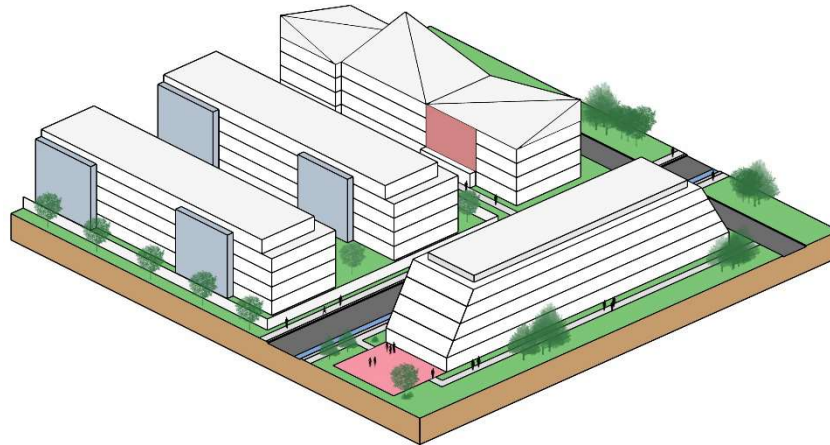
### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total FAR: Min. 1.0**

**Building Height: 3 to 8 stories**

(Average story height is 12 feet)



### Transition

Transitions between Urban Employment uses and other developments, adjacent residential neighborhoods in particular, are vitally important. In Urban Employment areas that adjoin less intensive uses, building heights should transition by stepping down from the center of the more intensive development, to heights that are generally within one story of structures in the less intensive development.

# Suburban Policy Area

## Vision

The Suburban Policy Area (SPA) contains self-sustaining communities where one can live, work, learn, and play. The SPA will have a mix of residential, commercial, and employment uses; a full complement of public services and facilities; amenities that support a high quality of life; and a design that incorporates a holistic approach to maintaining and improving community character through compatible development.

## Introduction

The 48,000-acre SPA is located in the easternmost portion of the County, in close proximity to the job centers and activity areas located east of Loudoun. The Suburban Policy Area is defined on the north by the Potomac River and on the south by Braddock Road. Its eastern edge is the Fairfax County line, and its western edge begins at the Potomac River and follows a southerly path along the Goose Creek just east of Leesburg, the Goose Creek and Beaverdam Reservoirs, and a combination of property lines, roads, and power line easements. The earliest planned development occurred within the Potomac and Sterling communities during the 1960s signaling the beginning of the transformation of eastern Loudoun County from farmland with a centuries old rural heritage to the suburban area that it is today.

The SPA is designated as one of the growth areas of the County and has accommodated most of the residential and commercial development over the past decades due to the presence of central water and sewer utilities and an expanded road network. Two major events helped to open the SPA to residential development: 1) the construction of Washington Dulles International Airport, and 2) the construction of a major sewer line that accommodated the airport and improvements to Route 7 and Route 28.



*Washington Dulles International Airport*

Route 7 and Route 28 have evolved into critical transportation corridors that are contributing to Loudoun County's reputation as an international center for technology, communications, and global data management sectors. Given its connection to the Washington Dulles International Airport, Route 28 continues to play a major economic role for Loudoun County as a key location for on-going development. The County is committed to the continuing growth of and need for an economically vibrant Route 28 corridor, and the [Route 28 Highway Transportation Improvement District](#), aids in accomplishing this goal by levying additional tax assessments on commercial and industrial properties to finance transportation improvements to Route 28. Additionally, the SPA surrounds the Urban Policy Area near the Silver Line Metro Stations that will include new dense, urban, transit-oriented types of development.

## Background

The SPA consists of a mix of commercial areas and neighborhoods that provide a broad range of quality environments. The commercial areas of the SPA are focused areas for employment uses within a variety of commercial and workplace environments, including traditional office and industrial parks, mixed use centers, and neighborhood-serving commercial centers.

Residential neighborhoods in the eastern corner of the County were built between 1960 and 1990, while neighborhoods built in the western area of the SPA were built in the early 1990s or later. The older neighborhoods commonly reflect the housing styles and neighborhood designs that were prominent in the era they were developed and provide a more limited mix of housing types (primarily single-family) while relying on neighborhood commercial developments located on major roads like Route 7 for easy access to amenities. The master planned developments west of Route 28 include a variety of housing types organized around neighborhood centers designed as the focal point of the community and provide easy access to daily needs. Parks, greenways, and open space frame developments and link neighborhood residents to nature, neighborhood destinations, and beyond in both the western and eastern neighborhoods.



*Suburban Neighborhood*

## Development Approach

The County will focus efforts on fostering and maintaining community identity within the SPA and its communities. The SPA is not and should not be one homogenous area. Many existing neighborhoods in Eastern Loudoun are becoming increasingly diverse, bringing a new set of expectations and attitudes to these communities. As new development continues in this area, the roads are becoming increasingly congested, and the lack of transit access and safe pedestrian connections is a mounting concern. Continuing the County's goal to create communities with unique community visions would help identify and strengthen the creation of distinct places within the SPA; ensure that they are well designed and serviced; and that they provide diverse and stimulating social, cultural, recreational, and livable environments for their residents. Policies below address ways to improve livability through: 1) protecting and enhancing elements of Natural, Environmental, and Heritage Resources, including open space and pedestrian connections; 2) ensuring compatible and complementary infill development; and 3) reinvesting in existing neighborhoods in a way that protects and enhances our existing communities. The concept of creating Community Plans is one that offers tremendous potential to ensure that the vision of the SPA is fully achieved and to guide the remaining build-out of each area.

Rapid growth in the County, with the majority occurring in the SPA, has increased development pressure outside of the SPA. Today there is little undeveloped land remaining in the SPA as most

land has already been developed or is approved for development. With limited developable land in this area, the County is at a juncture in its planning efforts for greenfield development. Redevelopment and infill will soon begin to play an increasing role in development decisions within the SPA, which will mark a significant shift in the county’s planning and development activities (see the Infill and Redevelopment section). Because much of the SPA is currently developed, most new projects will be smaller in scope and need to be evaluated based on how they can be integrated into the surrounding community. The amount of limited land available and the added growth from redevelopment and infill will make adding public facilities to the SPA a challenge. Public facility standards may need to change to continue to adequately address the needs of the population. As the primary location for suburban-scale residential and nonresidential development, the manner of growth and redevelopment in the SPA is of vital importance.

The demographic, market and land use trends of the past decades have led to greater demand for mixed-use and urban environments. National trends show that changes in typical households (for example millennials, seniors, empty nesters) may demand different housing types, public services, and lifestyle options than provided in the past. To attract top talent, many employers are focusing on employee satisfaction when considering locations and designs of office space. Employers in professional services, technology, and innovation sectors are shifting away from traditional suburban offices towards urban “live, work, learn, play” environments to enhance quality of life. While the County previously established an overall land-development strategy that encouraged compact, mixed-use development providing people with the opportunity to live, work, learn, recreate, and shop in a pedestrian-friendly environment, the development that has occurred in Loudoun has largely remained single-use and automobile-oriented.



*Mixed Use Development*

Loudoun County continues to be an attractive place for residential development given its geographic location in the region, school system performance, and notable quality of life measures. Demand for residential product will need to meet a wide variety of preferences, driven by attractiveness for families, young adults forming new households, and downsizing occurring in the Baby Boomer generation. Demand for non-residential development will be driven by the addition of new households, the County’s assets, infrastructure, and the County’s technology sector. Retail users will

follow new residential development, seeking locations that offer accessibility and visibility to an expanding customer base. Other employers seeking office and industrial space will locate in areas that serve their target needs.

The County previously designated land along its primary transportation corridors for “Keynote Employment” areas to provide locations for corporate campus style office development; however,



new suburban-style office developments are no longer envisioned in these areas due to declining demand and concerns about the sustainability of single-use development patterns.

It is expected that mixed-use developments will be the most attractive environments for retail and office uses in the coming years. To provide alternative means of addressing office development and land uses along Route 7, Loudoun County Parkway, and Route 28, this Plan replaces the “Keynote Employment” planned land use designation with a number of designations. To continue to maximize the commercial development potential within the Route 28 corridor, the Suburban Employment and Suburban Mixed Use Place Type designations offer planned land uses that reflect the full economic potential of properties and provide employment settings that reflect the kind of environments sought by business users.

Changes in technology over the past decade have contributed to the escalated development of data centers within the County. To date, there are approximately seventeen million square feet of data center facilities completed, under construction, or planned. Future demand for data centers will need to be accommodated in places that have access to utilities, including electricity, water, and fiber. The supply of industrial and flex space is being outpaced by demand, resulting in low vacancy rates. As available greenfield sites in eastern Loudoun County become more limited, targeting key tracts of land for employment uses will be critical to ensure future economic growth.

The Suburban Employment and Suburban Industrial/Mineral Extraction Place Type designations provide guidance to develop a pattern of office, commercial, and industrial uses by allocating sufficient land for all employment in an amount which realistically anticipates market demands and provides the necessary services to support their development. While industrial and certain commercial uses are not typically an integral part of a mixed-use development, they offer employment opportunities to residents of the County and should be designed as independent developments that achieve the goal of creating thriving areas of commerce which are characterized by convenient access to transportation, an attractive appearance, and compatibility with adjacent land uses.

Overall, the County’s approach is to ensure that future development is complementary to the existing development pattern of the SPA while supporting the necessary flexibility in form and use that will be needed to create vibrant mixed-use environments and maintain the supporting



### **Community Character**

*Community character is the aggregate of features and traits that form the individual nature and uniqueness of a community. It includes the constructed and natural landmarks and surroundings that cause someone to identify with a particular place or community. This character is shaped by natural, cultural, societal, historic, and economic forces.*



employment areas. As each new development is absorbed into the SPA’s built environment, it will be viewed in the context of the larger community with an emphasis placed on the character of the development and how it contributes to the needs and overall identity of the SPA and Loudoun County.

## **Policies, Strategies, and Actions**

Unless otherwise specified, the following Policies, Strategies, and Actions apply only within the SPA.

### **SPA Policy I: Foster community identity within the Suburban Policy Area.**

#### Strategy

- 1.1. Create new Community Plans and other appropriate plans that address the particular needs and guide the remaining build-out, reinvestment, and/or redevelopment of specific areas within the Suburban Policy Area, particularly federally designated Opportunity Zones.

#### Actions

- A. Establish design principles for individual communities within the Suburban Policy Area which ensure a high quality of development and redevelopment is achieved.
- B. Ensure development and redevelopment proposals conform to the applicable Design Guidelines of this plan.
- C. Use the Infill and Redevelopment polices to maintain neighborhood vitality, reinvest in underused areas, and facilitate complete, connected, and distinct communities.
- D. Identify and protect environmental features and design developments to follow, to the extent possible, the natural topography.
- E. Promote a natural, environmental, and heritage resources approach to residential and commercial place types.

#### Strategy

- 1.2. Integrate new development within the Suburban Policy Area with the existing development pattern that surrounds it.

#### Action

- A. Evaluate the appropriateness of a proposed use or development with the surrounding community.

#### Strategy

- 1.3. Design and develop Suburban Policy Area communities as walkable and interconnected places.

#### Actions

- A. The County, in collaboration with other governmental agencies and the private sector, will ensure through a variety of measures that all public spaces in residential and commercial areas are accessible by pedestrians.

- B. Retail and office development proposals will combine open and civic space in features such as pedestrian promenades and plazas, public art, entrance features, linear parks and trails, outdoor seating, lawns and greens, and similar design features that invite pedestrian activity.
- C. Require convenient access by foot and bicycle for residential, office, institutional, civic, and retail areas. Areas including light and heavy industrial uses will be evaluated on the appropriateness of access by foot and bicycle due to security and/or public safety issues.
- D. The *Loudoun County 2019 Countywide Transportation Plan* provides additional transportation policy direction for the transportation network (walkability, multimodal, connectivity) in the Suburban Policy Area.

**SPA Policy 2: Create environments where individuals can work, live, learn, and have convenient access to services, shops, and recreation.**

Strategy

- 2.1. Allow a mix of uses or uses that complement and complete existing communities.

Actions

- A. Provide incentives for redevelopment, infill development, and adaptive reuse projects that will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities (see Infill and Redevelopment section).
- B. Allow new multi-family residential units to be located within existing commercial centers to allow for more walkable, mixed use communities.
- C. Promote residential and office uses above first floor retail.
- D. Allow flexibility in the development phasing for mixed-use projects while establishing a build-out relationship between the residential and non-residential components that ensures a mix of uses is achieved and to best balance the fiscal costs and benefits of the project.
- E. Promote high quality site and building design, landscape design and buffering in employment areas that reflect their function as a gateway to the Urban Policy Areas and location along major vehicular thoroughfares (see Quality Development section).
- F. Accommodate transit infrastructure in Employment and Mixed Use Areas (see *Loudoun County 2019 Countywide Transportation Plan*).



- G. Provide pedestrian and bicycle connectivity to surrounding networks and transit nodes within employment areas.
- H. Create a regulatory framework that limits bed count and/or square footage of new housing to achieve affordability by design.
- I. Consider allowing limited areas otherwise designated as the Suburban Neighborhood or Suburban Mixed Use place type to develop according to the Suburban Compact Neighborhood place type if the following criteria are satisfied:
  - i. The proposal includes housing units that address unmet housing needs that exceed the applicable regulatory requirements;
  - ii. The site is located at the periphery of a mixed use development or along a major transportation corridor;
  - iii. Transit options are available within the direct vicinity;
  - iv. The site is proximate to employment options and a complementary mix of uses (e.g., neighborhood serving retail and services);
  - v. The site is proximate to public facilities with existing or planned capacity to serve the proposed development;
  - vi. The proposal conforms to the transition techniques and guidelines of the originally designated place type and any adjacent place types; and
  - vii. The proposal demonstrates innovation in design, including techniques that result in a perceived density that complements the scale of the surrounding built environment.

**SPA Policy 3: Support the Route 28 Highway Transportation Improvement District, established by the State as a means of providing additional local revenue to pay for improvements to Route 28.**

#### Strategy

- 3.1. Ensure protection of the [Route 28 Highway Transportation Improvement District](#) as an important economic key of attracting major national and international corporations, and ensuring the long-term viability of Washington Dulles International Airport.

#### Actions

- A. Encourage non-residential development within the Route 28 Highway Transportation Improvement District.
- B. Limit residential development in the Route 28 Highway Transportation Improvement District except when allowing residential units will directly catalyze the commercial development potential of land in the District and result in an overall positive fiscal impact to the County's Route 28 Highway Transportation Improvement District debt obligations.
- C. Consider residential development on a case by case basis that results in a net positive impact to the County

- D. Establish an “opt-in” period to encourage owners of property in the Route 28 Highway Transportation Improvement District to opt into the updated/new Loudoun County Zoning Ordinance that is planned to be adopted to implement the *Loudoun County 2019 Comprehensive Plan*.

## Design Guidelines

The Design Guidelines are to build upon our current development patterns in a manner that allows innovative design and new responses to the market. The design guidelines are not meant to be prescriptive and are not intended to be treated as a checklist, but are instead meant to provide a framework for how the desired character of the SPA can be achieved, with the acknowledgement that other methods could achieve the intended results. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, proffers or any other design standards or regulations administered by Loudoun County.

*The goals of the SPA Design Guidelines are to:*

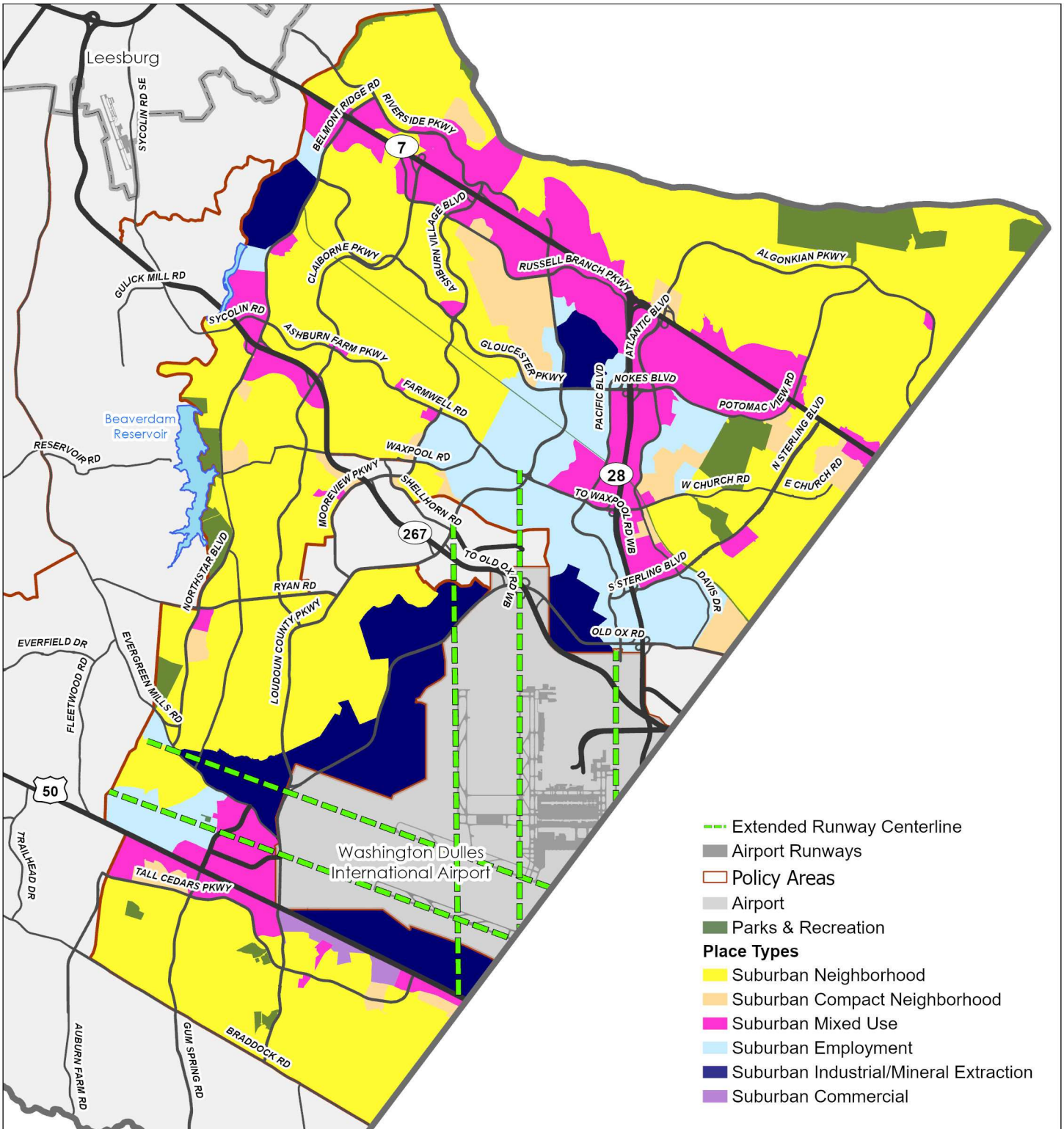
- Create visually interesting and compatible buildings and site designs that use building forms, materials, fenestration, repetition, rhythm, color, and architectural variety resulting in blends of form, volumes, textures, and colors in the various neighborhoods;
- Create inviting spaces for varied activity; and
- Create a sense of place and uniqueness.

When using the guidelines make sure to analyze the impact a potential development may have on the urbanizing landscape, considering not only appearance, but practical considerations - such as proximity and quality of connections to community amenities, jobs, and housing to maximize the use of existing infrastructure and limit travel distances. The County encourages the use of a design process when planning development in the SPA that conserves natural, environmental, and heritage resources and incorporates any such features into the site design. Development should contribute to creating unique places within the Suburban Policy Area by working with existing topography and site features, responding to the local context, and reinforcing the regional character. Sustainability requires maximum consideration for using the landscape for benefits like solar heat gain or shelter from wind, as well as building designs that incorporate energy efficient and green building technologies. The bulk of the design should be consistent with the function of the development. (See Appendix A for Development Criteria and Design Guidelines for the SPA)

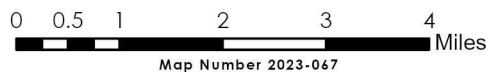
## Place Types

As described in the beginning of this chapter, the following Place Types have been designated for specific locations as displayed on the accompanying map. The Place Types will work in concert with the Design Guidelines and Policies, Strategies, and Actions of the SPA to fulfill the land use patterns and community characteristics intended for the area.

Loudoun County  
**Suburban Policy Area**  
**Place Types**  
 2019 General Plan



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



# Suburban Neighborhood



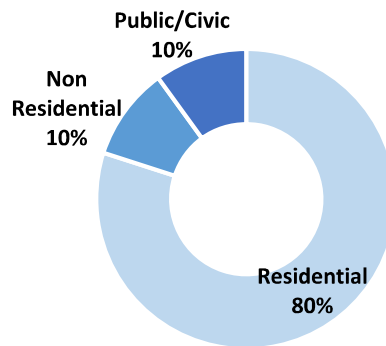
Suburban Neighborhood areas include Loudoun’s master planned neighborhoods of predominantly residential uses arranged on medium-to-large lots. Accessory residential units can be appropriate for the area and may consist of apartments in the principal structure, garage apartments, or other outbuildings approved by the County. Retail and service uses that serve the routine shopping needs of the immediate neighborhood (e.g., grocery stores, gas stations, drive-throughs, drycleaners, etc.) should be integrated into the area at significant intersections and along major roads.

Limited areas otherwise designated as Suburban Neighborhood on the Place Type map may be allowed to develop according to the Suburban Compact Neighborhood Place Type if the locational and design criteria of SPA Action 2.1.I are satisfied.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Single Family Detached Residential</li> <li>• Single Family Attached Residential</li> <li>• Civic, Cultural, &amp; Community</li> </ul>	<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial</li> <li>• Active Adult Retirement Communities</li> <li>• Multi-Family Residential</li> <li>• Accessory Residential Units</li> </ul>	<ul style="list-style-type: none"> <li>• Office</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

**Preferred Mix of Uses**

- Possible Ranges:
- Res: 75-90%
  - Non-Res: 0-15%
  - Public/Civic: 10%+



## DESIGN CHARACTERISTICS

### Context

Primarily single family detached and attached residential uses that are integrated in a walkable street pattern.

**Street Pattern:**

Fragmented Parallel, limited Loop and Cul-de-sac

**Block Length:**

600-1,500 feet

**Building Setback:**

Shallow to medium

**Parking:**

Driveway, garage, or on-street

**Design Amenities:**

Sidewalks, street trees, lighting, crosswalks, common open spaces

**Retail and Service:**

Neighborhood - individual uses under 5,000 or small center up to 30,000 square feet

Community- individual uses under 30,000 or center between 30,000-150,000 square feet

**Open Space:**

30% of the site- Recreational (active and passive), Community, and/or Natural, Environmental, and Heritage



*An example plan view of a Suburban Neighborhood*



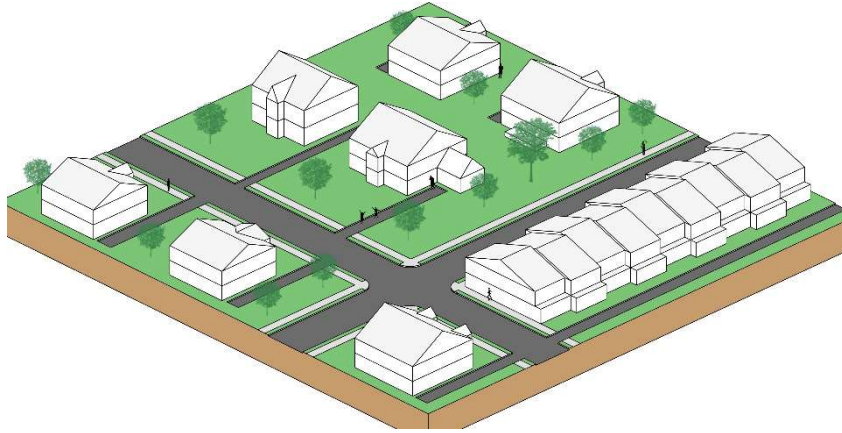
### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: Up to 4 du/ac; Up to 6 du/ac for infill development**

**Non-Residential FAR: Up to 1.0**

**Building Height: Up to 4 Stories**



### Transition

Transitions should be gradual, particularly where natural or man-made buffers are not available. New developments within Suburban Neighborhood areas adjacent to lower-density residential uses should create transitions in building scale and incorporate design elements that soften those transitions. Higher-density residential development can serve as a transitional land use between nonresidential uses and lower-density residential areas. Appropriate transitional techniques include variations in building orientation, height step down, and creative and extensive use of landscaping and natural features. Fencing or other barriers should not be used as the sole means of screening and buffering.



## Suburban Compact Neighborhood



Suburban Compact Neighborhood areas provide opportunities to develop neighborhoods that can take advantage of small infill parcels near traditional suburban neighborhoods or high-density walkable urban neighborhoods, depending on the context of their location. They provide opportunities for a mix of housing types including small-lot patio homes, townhomes, duplexes, and multifamily residences. Accessory residential units are also appropriate for these areas and may consist of apartments in the principal structure, garage apartments, or other outbuildings approved by the County. Open space areas such as parks, trails, community courtyards, and small public plazas should be integrated into individual site plans. Small-scale offices as well as retail and service uses serving the immediate or routine shopping needs of the immediate neighborhood (e.g., grocery stores, drycleaners, etc.) could be integrated into these neighborhoods. Auto-oriented uses, such as gas stations, car washes, and drive-throughs, would be located along streets primarily designed for the automobile. Development within this Place Type should include a public and civic component or be located within walking distance of public and civic amenities.

Core Uses	Complementary Uses	Conditional Uses		
<ul style="list-style-type: none"> <li>Single Family Attached Residential</li> <li>Single Family Detached Residential</li> <li>Multi-Family Residential</li> </ul>	<ul style="list-style-type: none"> <li>Active Adult Retirement Communities</li> <li>Accessory Residential Units</li> <li>Retail &amp; Service Commercial</li> </ul>	<ul style="list-style-type: none"> <li>Office</li> <li>Civic, Cultural, &amp; Community</li> <li>Public Facilities</li> <li>Special Activities</li> <li>Parks &amp; Recreation</li> </ul>		
<b>Preferred Mix of Uses</b>				
<p>Possible Ranges:</p> <ul style="list-style-type: none"> <li>Res: 85-100%</li> <li>Non-Res: 0-15%</li> <li>Public/Civic: 0%+</li> </ul>	<table style="margin: auto; border: none;"> <tr> <td style="text-align: center;">Non Residential 10%</td> <td style="text-align: center;">Residential 90%</td> </tr> </table>		Non Residential 10%	Residential 90%
Non Residential 10%	Residential 90%			

## DESIGN CHARACTERISTICS

### Context

Compact residential development providing opportunities for a variety of unit types that can be designed to fit within or adjacent to surrounding neighborhoods.

**Street Pattern:**

Rectilinear Grid

**Block Length:**

200-660 feet

**Building Setback:**

Shallow setbacks

**Parking:**

On-street, accessory, alley-oriented parking

**Design Amenities:**

Sidewalks, street and shade trees, lighting, street furniture, bike racks, crosswalks

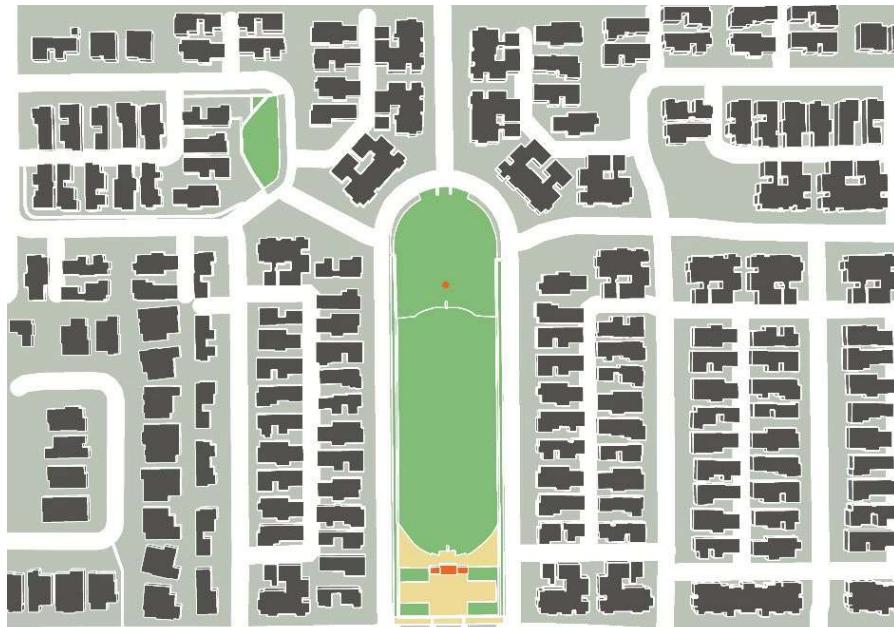
**Retail and Service:**

Neighborhood - individual uses under 5,000 or small center up to 30,000 square feet

Community- individual uses under 30,000 or center between 30,000-150,000 square feet

**Open Space:**

15% of the site-Recreational (Passive and Active), Community, and/or Natural, Environmental, and Heritage



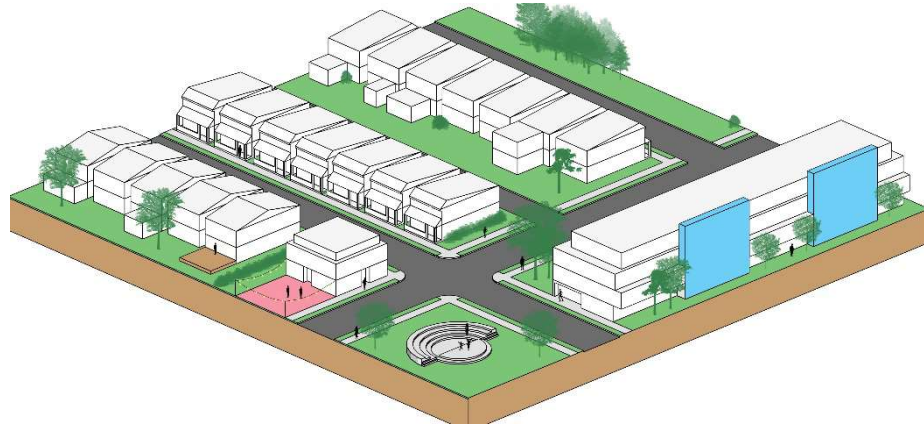
*An example plan view of a Suburban Compact Neighborhood*

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: 8-24 du/ac**  
**Building Height: Up to 4 stories**

**Total Nonresidential FAR: Up to 1.0**



### Transition

Appropriate transitional methods should be implemented where new development abuts more intensive nonresidential uses or less intensive residential uses. New high-density and large-scale infill within Suburban Compact Neighborhood areas adjacent to lower density residential uses should create transitions in building scale and incorporate design elements that soften those transitions. Appropriate transitional techniques include variations in building orientation, height step-down, and creative and extensive use of landscaping and natural features.



# Suburban Mixed Use

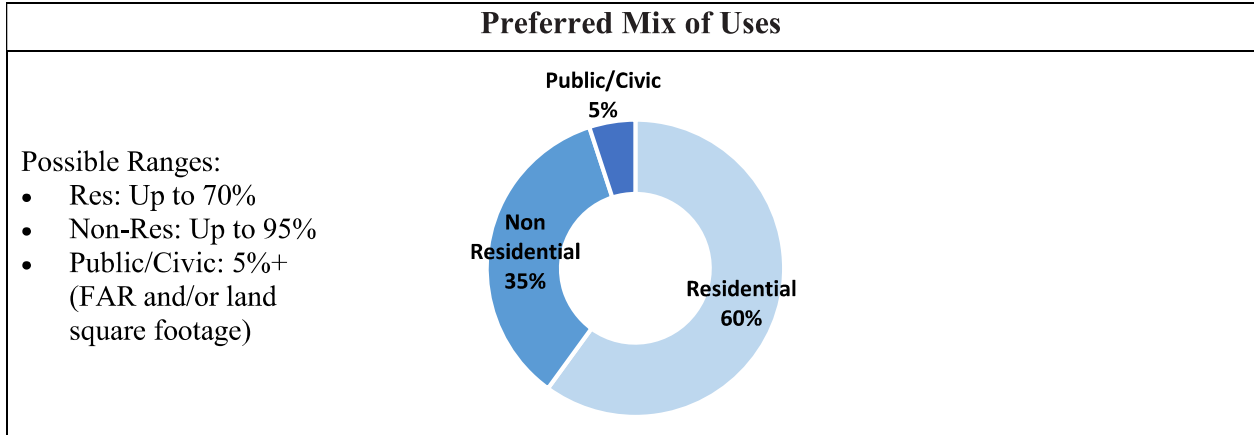


Suburban Mixed Use areas provide compact, pedestrian-oriented environments with opportunities for a mix of residential, commercial, entertainment, cultural, and recreational amenities. Although this area provides for residential uses, commercial and entertainment uses are the primary draw to the mixed-use center. Some areas within Suburban Mixed Use will not include a residential component, but will rather provide opportunities for non-residential uses that support the surrounding adjacent neighborhoods or provide a transition between larger mixed use developments that contain residential uses.

Reducing the distance between home, work, and entertainment/retail destinations, Suburban Mixed Use areas serve as logical locations for transit stops. Accessory residential units are also appropriate for the area and may consist of apartments in the principal structure, garage apartments, or other outbuildings approved by the County. In such specialized designs, office and residential parking structures, gas stations, car washes, drive-throughs, and other auto-related functions would be located along streets primarily designed for the automobile. Office, multifamily buildings and store entrances would be located along streets designed primarily for pedestrians.

Over time, existing commercial developments within Suburban Mixed Use areas should be redeveloped with a vertically integrated mix of uses on the site. Multi-family residential can also be introduced into the design of existing suburban-style commercial developments as an initial step toward creating vibrant, walkable mixed-use communities. Limited areas otherwise designated as Suburban Mixed Use on the Place Type map may be allowed to develop according to the Suburban Compact Neighborhood Place Type if the locational and design criteria of SPA Action 2.1.I are satisfied.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial</li> <li>• Office</li> <li>• Entertainment Commercial</li> <li>• Multifamily Residential</li> <li>• Institutional</li> <li>• Hotel</li> </ul> <p><small>*Residential restrictions in noise-sensitive areas located within 65 Ldn noise contours</small></p>	<ul style="list-style-type: none"> <li>• Small Lot Single Family Residential Attached</li> <li>• Active Adult Retirement Communities</li> <li>• Civic, Cultural, &amp; Community</li> <li>• Accessory Residential Units</li> </ul>	<ul style="list-style-type: none"> <li>• Small Lot Single Family Residential Detached</li> <li>• Public Facilities</li> <li>• Conference Center</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

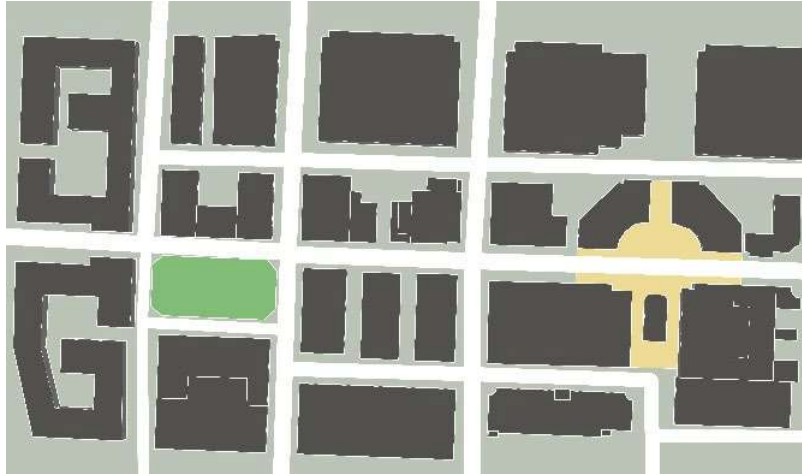


## DESIGN CHARACTERISTICS

### Context

A mix of uses, which may be provided through mixed-use buildings and multi-story single-use buildings that may be integrated in a walkable street pattern.

<p><b>Street Pattern:</b> Rectilinear, Gridiron, Linear</p> <p><b>Block Length:</b> 200-660 feet</p> <p><b>Building Setback:</b> Shallow setbacks at sidewalks</p> <p><b>Parking:</b> On-street, accessory, short-term, alley-oriented, structured, surface</p> <p><b>Design Amenities:</b> Sidewalks, street trees, street furniture, shade trees, bike racks, lighting, crosswalks, plazas, pedestrian malls, network of green space, public art</p> <p><b>Retail and Service:</b> Single-story individual retail buildings shall not be permitted greater than 2,000 square feet and must be integrated into the compact, pedestrian-oriented environment. Drive-through retail uses shall be incorporated within mixed-use buildings.</p> <p>Neighborhood (allowed only within Single Family residential areas) – single-story individual uses under 5,000 or small center up to 30,000 square feet</p> <p><b>Open Space:</b> 10% of the site-Recreational (passive and active), Community, Public and Civic, and/or Natural, Environmental, and Heritage</p>
---



*An example plan view of Suburban Mixed Use*

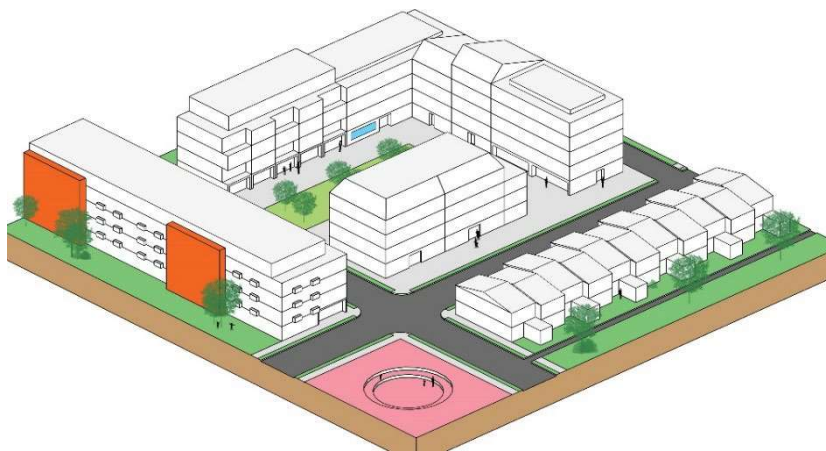
**Place Type Rendering**

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total FAR: Up to 1.0\***

**Building Height: Up to 5 stories**

\* Additional density (up to 1.5 FAR) may be achieved through the provision of one or more of the following project elements that go above and beyond required development standards to further the County’s comprehensive planning goals: affordable housing units, building techniques that exceed industry efficiency standards, additional community amenities and pedestrian connections, and/or beneficial revitalization/redevelopment in priority areas.



### **Transition**

Small block sizes and a mix of different uses make transitions between uses and developments important in the Suburban Mixed Use Place Type. Changes in height or building character, where allowed, should occur mid-block to promote balanced streetwalls where both sides of the street appear similar in height if possible. Larger developments near smaller residential dwellings should step down appropriately to respect these neighbors. Developments should be transitioned from taller buildings at the center to heights generally no more than a story taller than adjoining adjacent development consisting of less intensive uses. The predominant residential use type is multifamily; however, a very limited portion of the development within the Suburban Mixed Use Place Type may be developed with small-lot single family residential as a transitional use between Place Types.





# Suburban Commercial



Suburban Commercial developments provide opportunities for larger format retail commercial establishments and smaller commercial establishments within a “main street” style environment. These developments should be designed to provide access to adjacent neighborhoods and to patrons living in the larger Loudoun community. Generally, these areas tend to be located next to major roads or existing residential neighborhoods. The predominant uses are community-serving retail commercial and “big box” commercial. This place type encompasses a wide array of commercial designs.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>Retail &amp; Service Commercial</li> <li>Office</li> <li>Research and Development</li> <li>Entertainment Commercial</li> </ul>	<ul style="list-style-type: none"> <li>Civic, Cultural, &amp; Community</li> <li>Hotel</li> <li>Conference Center</li> </ul>	<ul style="list-style-type: none"> <li>Active Adult Retirement Communities</li> <li>Institutional</li> <li>Special Activities</li> <li>Parks &amp; Recreation</li> <li>Public Facilities</li> </ul>
<b>Preferred Mix of Uses</b>		
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Possible Ranges:</p> <ul style="list-style-type: none"> <li>Res: 0%</li> <li>Non-Res: Up to 100%</li> <li>Public/Civic: 0%+</li> </ul> </div> <div style="flex: 1; text-align: center;"> <p style="margin: 0;"><b>Non Residential</b> <b>100%</b></p> </div> </div>		

## DESIGN CHARACTERISTICS

### Context

It is desirable for buildings in this place type to be organized to create a pedestrian-friendly streetscape with building frontages and landscaping strategically placed so that parking is not the predominant feature. Big box retail uses and pad sites should be integrated into the design of the

site through the use of similar architectural elements, varying block sizes, parking and landscaping. Structures in Suburban Commercial areas should be compatible in size, roof type/pitch, architecture, and lot coverage with the surrounding residential uses.

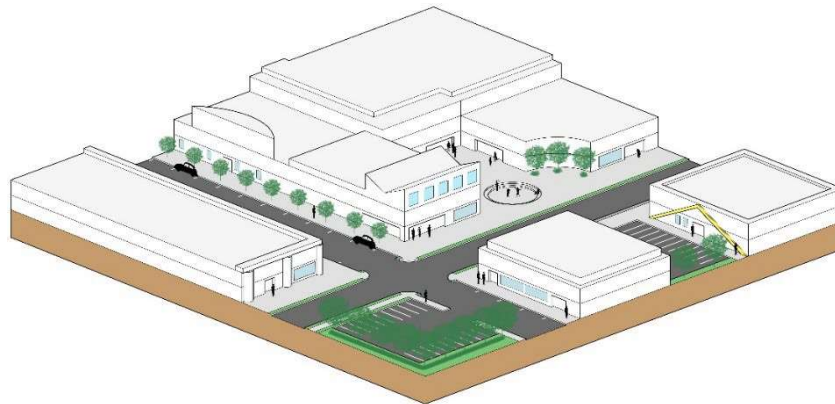
<p><b>Street Pattern:</b> Rectilinear, Gridiron, Linear</p> <p><b>Block Length:</b> 300-800 feet</p> <p><b>Building Setback:</b> Shallow to medium setbacks at sidewalks</p> <p><b>Parking:</b> On-street, accessory, short-term, surface, structured</p> <p><b>Design Amenities:</b> Sidewalks, street trees, street furniture, shade trees, bike racks, lighting, crosswalks, plazas, pedestrian malls, network of green space, public art</p> <p><b>Retail and Service:</b> Convenience - individual under 5,000 or small center up to 30,000 Neighborhood - individual uses under 5,000 or small center up to 30,000 square feet Community - individual uses under 30,000 or center between 30,000-150,000 square feet</p> <p><b>Open Space:</b> 10% of the site - Recreational (passive and active), Community, and/or Natural, Environmental, and Heritage</p>
--

**Place Type Rendering**

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total FAR: Up to 1.0**

**Building Height: Up to 5 stories**



**Transition**

Changes in height or building character, where allowed, should occur mid-block to promote balanced streetwalls where both sides of the street appear similar in height if possible. Developments should be transitioned from taller buildings at the center to heights generally no more than a story taller than adjoining adjacent development consisting of less intensive uses.

# Suburban Employment



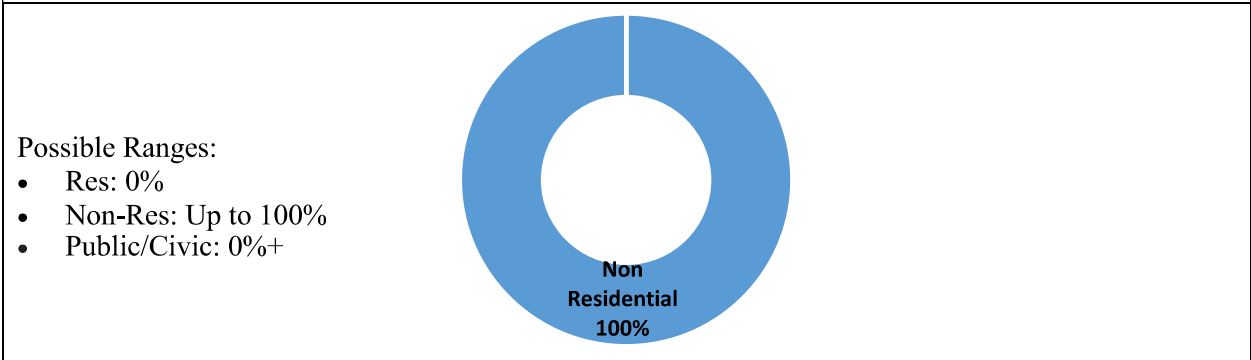
Suburban Employment areas provide opportunities for a broad array of employment uses within an environment that provides gathering spaces and opportunities for synergies among businesses. These offer prime locations for office, production, flex space, and warehousing uses as well as startups and established businesses. Appropriate uses do not generate excessive noise or air pollutants or require outdoor storage. Limited first floor retail that supports predominant uses is appropriate.

Parking should generally be located behind the building to ensure the buildings are the predominant feature when viewed from roadways and adjacent properties. Although civic or recreation space is not expected, required open space in Suburban Employment developments should include areas for use by customers and employees.

For secure employment campuses, deviations from the applicable base design standards may be considered on case-by-case basis in order to accommodate security elements such as greater building setbacks, secured perimeters, or controlled site access.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Light Production</li> <li>• Office</li> <li>• Research &amp; Development</li> <li>• Contractor without Outdoor Storage</li> <li>• Flex Space</li> </ul>	<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial</li> </ul>	<ul style="list-style-type: none"> <li>• Institutional</li> <li>• Civic, Cultural &amp; Community</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> <li>• Data Centers</li> <li>• Warehousing</li> </ul>

**Preferred Mix of Uses**



## DESIGN CHARACTERISTICS

### Context:

Separate employment uses that are integrated within a walkable, employment-based environment.

#### Street Pattern:

Rectilinear, Gridiron, or Fragmented Parallel

#### Block Length:

300-1,000 feet

#### Building Setback:

Short to medium; greater if flex use

#### Parking:

Structured, surface, on-street, accessory, or short-term

#### Design Amenities:

Sidewalks, street trees, shade trees, bike racks, plazas, public art

#### Retail and Service:

Employment Supportive-Limited to support the predominate use. Generally 10% of the gross FAR of the employment uses.

#### Open Space:

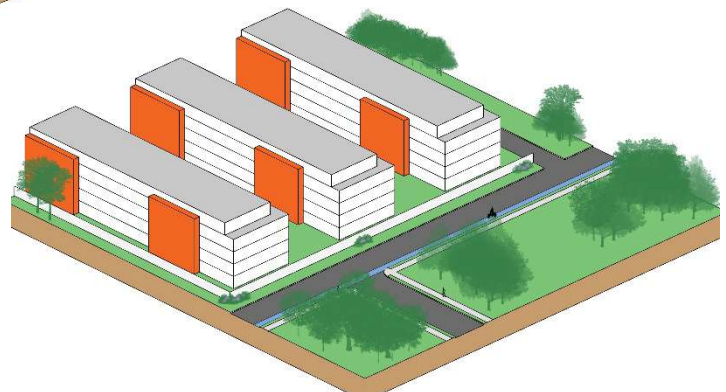
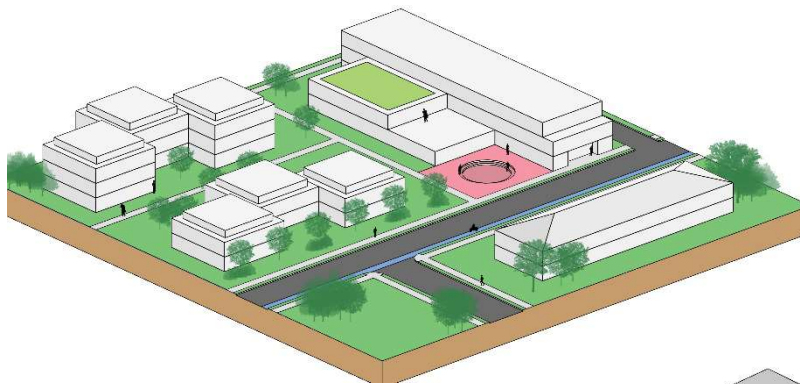
30% of the site- Recreational (trails), Community (outdoor seating, plazas, gardens, public art), and/or Natural, Environmental, and Heritage

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total FAR: Up to 1.0**

**Building Height: 2 to 8 stories**



## Transition

Transitions between Suburban Employment uses and other developments, in particular adjacent residential neighborhoods, are vitally important. Building heights should step down appropriately to less intense residential uses. In developments adjoining less intensive uses, building heights should decrease moving outward from the center of the development, stepping down to heights generally within one story of adjacent structures.

Certain employment uses that may not be compatible with adjacent residential uses, such as data centers, should have transitional uses located in between.



# Suburban Industrial/Mineral Extraction



Suburban Industrial/Mineral Extraction areas consist of large manufacturing, contractor with outdoor storage, and other productive uses. Streets in this district are typically designed to accommodate freight ingress and egress. This Place Type also includes mineral extraction areas such as quarries and mines. Industrial and mineral extraction uses are incompatible with residential uses due to the prevalence of outdoor storage and the emissions of noise, odor, and vibrations. Buffers between these uses and residential uses are necessary to ensure compatibility and maintain commercial viability.

For secure employment campuses, deviations from the applicable base design standards may be considered on a case-by-case basis in order to accommodate security elements such as greater building setbacks, secured perimeters, or controlled site access.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>General and Heavy Manufacturing and Assembly</li> <li>Warehousing</li> <li>Contractor with Outdoor Storage</li> <li>Data Centers</li> <li>Fleet &amp; Equipment Sales &amp; Service</li> <li>Research &amp; Development</li> <li>Outdoor Storage</li> <li>Public Utilities</li> <li>Quarry</li> <li>Outdoor Manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>Retail &amp; Service Commercial</li> <li>Flex Space</li> <li>Light Production</li> </ul>	<ul style="list-style-type: none"> <li>Office</li> <li>Public Facilities</li> <li>Special Activities</li> <li>Parks &amp; Recreation</li> </ul>
<b>Preferred Mix of Uses</b>		
<p>Possible Ranges:</p> <ul style="list-style-type: none"> <li>Res: 0%</li> <li>Non-Res: Up to 100%</li> <li>Public/Civic: 0%+</li> </ul>	<p style="text-align: center;">Non Residential 100%</p>	

## DESIGN CHARACTERISTICS

### Context

Primarily one-to-two-story buildings used for warehousing, data centers, contractor services, or manufacturing.

#### Street Pattern:

Irregular

#### Block Length:

300-1,000 feet

#### Building Setback:

Deep, varying with use

#### Parking:

Surface

#### Design Amenities:

Sidewalks, street trees, shade trees

#### Retail and Service:

Employment Supportive-Limited to support the predominate use. Generally 5% of the gross FAR of the employment uses.

#### Open Space:

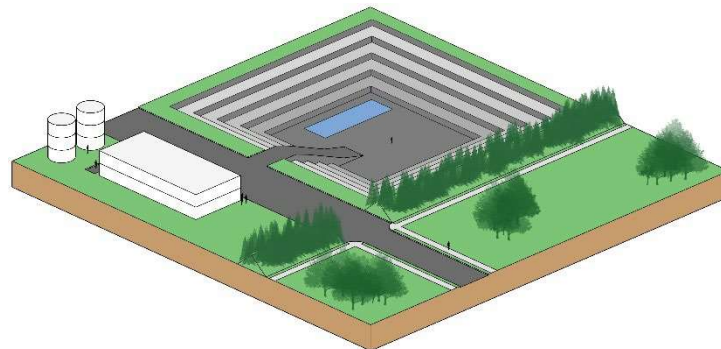
30% of the site-Recreational (sidewalks or trails), Community (outdoor seating area), and/or Natural, Environmental, and Heritage

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total FAR: Up to 0.6**

**Building Height: Up to 4 stories**



### Transition

Transitions between Suburban Industrial/Mineral Extractive uses and other developments, in particular adjacent residential neighborhoods, are critically important to the viability of long-term industrial operations. Setbacks, buffering, and natural open space can reduce impacts by blending the edges of Industrial/Mineral Extraction developments with surrounding developments, providing softer transitions than structural buffers. Storage and loading areas are to be oriented away from and screened from streets and adjacent uses.

# Transition Policy Area

## Vision

The Transition Policy Area (TPA) is visually distinct from adjoining policy areas, providing expansive open space with publicly accessible recreational opportunities while accommodating a residential development pattern, consistent with the appropriate place types, that promotes environmental protection, housing diversity, quality design, economic growth, and protection of natural, environmental, and heritage resources.

## Introduction

The TPA provides a distinct development pattern focused on retaining substantial open space to frame a unique built environment accommodating a variety of communities. The open spaces serve as dominant landscape, providing significant opportunities for public recreation and facilities within the context of an assortment of community designs. TPA communities range from rural estate developments to compact residential neighborhoods that can provide a variety of housing options and protect natural, environmental, and heritage resources.

The *Loudoun County 2019 Comprehensive Plan* proposes that, in order to sustain a healthy economy and to provide greater opportunities for attainable housing, the County seek to accommodate a share of the anticipated regional housing demand. Anticipated high density development in the Urban Policy Area (UPA) will help meet the important multifamily component of the housing demand. The *Loudoun County 2019 Comprehensive Plan* also proposes increased density in areas of the Suburban Policy Area (SPA) and the integration of new residential uses into areas previously planned for commercial or employment uses. These approaches notwithstanding, there is not adequate capacity in these areas to address the County's housing demands. The Towns and Rural Policy Area (RPA) are not anticipated to absorb a significant portion of future housing demand. Infrastructure limits and community desires to maintain small-town community character are the primary constraints in the Towns. The RPA has land, but the limitations of onsite wells and septic systems, country roads, distance to services, and a strong community desire to preserve the rural character of western Loudoun all serve to limit growth capacity.

In light of these constraints, the *Loudoun County 2019 Comprehensive Plan* acknowledges the key benefits of accommodating additional housing in the TPA, including access to central utilities, an improving transportation network, proximity to the services and amenities of the SPA, and large, undeveloped tracts of land that will allow for inclusive community designs. The fundamental goal of this new development pattern will be to accommodate residential products and neighborhoods that will help meet the needs and desires of the County's growing and diversifying populace. Evaluation of new development proposals will focus on design concepts that conserve and incorporate environmental and heritage resources, offer housing that is affordable to a range of incomes, retain significant open space to protect resources, provide space for public and civic facilities and parks, and conceal the intensity of new development within a landscape of forests,



hedgerows, and tree stands. Residential developments will be expected to support a continuum of housing options and prices. Three commercial centers will offer local services and amenities so that the TPA will become a more self-sustaining community. Natural open spaces will continue to be the predominant visual element and create a contiguous network of green spaces.

The *Loudoun County 2019 Comprehensive Plan* reaffirms a growth boundary (GB) beyond which central water and wastewater systems are not allowed. Beginning in the north, the GB follows the SPA boundary to the point where it meets the TPA. The GB then follows the western edge of the TPA to meet the Prince William County boundary line in the south.

## Background

Between 1991 and 2001, the Board of Supervisors changed the policy direction for the TPA four times. Until 2001, the area was planned as part of the SPA or a phased expansion of the SPA. In 2001, the Board established the TPA as a separate policy area along with the Suburban, Rural and Joint Land Management Area (JLMA) policy areas:

- In 1991, the area was planned for suburban development that was to be phased with ultimate development expected to occur by 1995.
- In 1993, the Dulles South Area Management Plan added Upper Broad Run to the Dulles South suburban area at densities between 3 and 6 units per acre and added the Upper and Lower Foley and Lower Bull Run areas at densities between 1 and 3 units per acre.
- In 1997, the Dulles South Plan reestablished a suburban development phasing boundary west of Northstar Boulevard. The phasing area was then subject to the policies of the RPA until the County chose to expand the SPA.
- In 2001, the TPA became a distinct policy area in the *Revised General Plan* between the SPA and RPA. Six subareas of the TPA were established, each with density and open space requirements.
- In 2004, the Board of Supervisors amended the *Revised General Plan* and extended central water and wastewater systems throughout the TPA, establishing the western edge of the TPA as the County's Urban Growth Boundary<sup>1</sup>.

Although the TPA is predominantly residential, the *Loudoun County 2019 Comprehensive Plan* designates limited areas for industrial development in the northern portion of the TPA in close proximity to planned improvements to Sycolin Road and existing industrial land south of the Leesburg JLMA. Limited retail commercial development can be found along John Mosby Highway (Route 50) and the Board of Supervisors previously approved other retail space along Braddock Road (Route 620).

---

<sup>1</sup> In the *Revised General Plan*, the Urban Growth Boundary represented the full extent of central sewer and water service except to resolve an existing public health issue. The *Loudoun County 2019 Comprehensive Plan* uses the term "growth boundary" for the same purpose.

Important drinking water resources are located within the TPA, and watershed protection extends across significant portions of the Goose Creek and the Beaverdam Reservoir to help protect these resources. Conservation easements, proffered open space, and development setbacks provide a 300-foot buffer adjoining Goose Creek (see Chapter 3: Natural, Environmental, and Heritage Resources, Action 2.5.A). Loudoun Water owns the land surrounding Beaverdam Reservoir, while the County and NOVA Parks own parkland adjacent to the reservoir.

## Development Approach

While continuing to focus growth in the UPAs and SPA, the *Loudoun County 2019 Comprehensive Plan* acknowledges the limited amount of land available for development in the SPA and proposes new approaches in the TPA to accommodate some of the County's needs. These needs include accommodating additional housing to support the County's economic development goals, ensuring high quality community design, preserving open space, and maintaining a quality of life that hinges on a healthy and vibrant natural environment. There are several factors that enable the County to accommodate new growth in the TPA while protecting key environmental resources and protecting the RPA from encroachment of suburban development.

A number of existing neighborhoods along the western side of the TPA and rural villages just west of the TPA have already established a low density development pattern with significant areas of permanently protected open space, which creates a distinct edge to the TPA. Future TPA developments will still be required to preserve large open space areas that are a hallmark of the TPA's character and distinguish it from the SPA, where the Plan does not anticipate as much land dedicated as open space. The open space requirement will also require a more compact development pattern, resulting in smaller single family lots and a combination of detached and attached residential products.

Transportation projects in the eastern TPA, including improvements to Ryan Road (Route 772) and Sycolin Road (Route 625), and the completion of Shreveport Drive (Route 621 relocated) and Creighton Road (Route 774), will provide better connections to the east without necessarily adding to the congestion of Route 50. The *Loudoun County 2019 Comprehensive Plan* proposes to concentrate future development proximate to existing and planned transportation improvements where capacity exists. Large tracts of undeveloped and underdeveloped land south of Braddock Road and east of Northstar Boulevard are in close proximity to the SPA immediately to the north, yet are separated by several miles from the RPA farther to the west. This southeast portion of the TPA is also adjacent to Prince William County across the Bull Run to the south and Fairfax County to the east. The principal constraining factor in this area is the current lack of traffic capacity on existing roads and, while major roads are planned, new development will need to be timed to occur in conjunction with the availability of additional road capacity.

The 2004 extension of central water and wastewater utilities throughout the TPA enabled more compact development than previously planned, when the TPA was only served by wells and septic systems. Select areas of higher intensity development interspersed among lower density projects and with substantial open spaces that offer screening, separation, and recreation can be compatible with existing development.

The *Loudoun County 2019 Comprehensive Plan* examined specific areas of the TPA that were not already developed or committed to development. The potential for redevelopment was not considered in the development forecasts for the area. Areas subject to environmental constraints, such as conservation easements, steep slopes and floodplain, were excluded from development potential. Two areas of the RPA were added to the TPA because of the increasingly intense development that is occurring around them.

## Policies, Strategies, and Actions

Unless otherwise specified, the following Policies, Strategies, and Actions apply only within the TPA.

**TPA Policy I: Ensure that the Transition Policy Area retains the visual character established by extensive natural open space by using compact development concepts with substantial open space requirements, and low profile construction to minimize visual intrusion into the natural environment.**

### Strategy

- 1.1 Accommodate new more affordable and innovative residential communities in compact development patterns, while preserving open space, natural, environmental, and heritage resources, and other valued features that may exist on site.

### Actions

- A . Encourage a variety of housing within individual developments by permitting small and large lot single-family detached, duplex, triplex, quadruplex, accessory dwelling, and other housing unit types to expand housing options and thus affordability opportunities, and support the lifestyle preferences of a diverse community.
- B . Develop zoning regulations and design standards to accommodate Transition Community Centers and Transition Compact Neighborhood Place Types to expand housing diversity and improve commercial viability.
- C . Require new development to connect to Loudoun Water’s central water and wastewater systems and encourage existing development to connect.
- D . Continue to define the TPA by seven subareas to implement the Transition Large Lot Residential Neighborhood development pattern as identified on the Transition Policy Area Place Types Map.
- E . Continue to support agriculture-related businesses including equine uses, agritourism, commercial nurseries, and similar uses throughout the TPA.
- F . Continue to define the western edge of the TPA as the full extent of central sewer and water and the western edge of the growth boundary, pursuant to 15.2-2232.
- G . Ensure that open space within developments creates or enhances the following:
  - i. The 300-foot buffer and 200-foot transitional area along the Bull Run in the

- Upper and Lower Foley and Lower Bull Run subareas,
    - ii. The 300-foot buffer and 1,000-foot voluntary open space area along the Goose Creek, Goose Creek Reservoir, and Beaverdam Reservoir in the Lower Sycolin and Middle Goose subareas,
    - iii. A contiguous network of green spaces to supplement the natural and heritage resources connecting communities and natural resource areas, and
    - iv. A public trail and park network to destinations throughout the area.
- H. Continue to perform watershed management plans to determine appropriate water quality and quality controls.
- I. Consider adoption of reservoir protection overlay districts that provide buffering and storm water quality controls.

**TPA Policy 2: Offer safe and accessible parks and recreation opportunities that provide diverse activities for all ages, interests, and abilities.**

Strategy

- 2.1 Provide a network of protected open space that maintains natural, environmental, and heritage resources and reinforces the TPA’s unique character.

Actions

- A. Develop a Master Plan for parks, open space, and trails in the TPA that: 1) builds on and links current planned shared-use trails and park areas, and 2) places greater emphasis on quality, connected, usable, and publicly accessible open space.
- B. Protect the drinking water resources of the Occoquan, Beaverdam, and Goose Creek Reservoirs with natural stream and reservoir buffers, improved stormwater management, and other means.
- C. Retain 50 percent open space throughout the TPA, unless otherwise called for by the applicable place type or in the Lower Bull Run subarea where 70 percent open space is required for residential development to protect drinking water source watersheds, and seek to reserve publicly usable, accessible, and interconnected open space.
- D. Establish programs and regulatory mechanisms to increase publicly accessible open space, consistent with County facilities plans, through easements, land dedications, and purchase.
- E. Require Open Space Plans with individual development applications to illustrate proposed use, public accessibility, resource protection, and connection with other open space.
- F. Take advantage of existing or planned parks, stormwater ponds, and stream valley corridors, particularly the Goose Creek and Bull Run corridors, to create a linear park network linking larger park facilities and destinations.
- G. Pursue connected linear trails, parks and open space accessible to the public when considering development applications.

**TPA Policy 3: Target specific areas of the TPA for higher density residential and mixed-use development to create affordable and diverse housing opportunities in compact communities reflective of the historic development pattern of villages and towns in Loudoun.**

Strategy

- 3.1 Establish guidelines to accommodate compact communities that provide sustainable and affordable housing.

Actions

- A. Create new Community Plans and other appropriate plans which address the particular needs and guide development within the Transition Policy Area.
- B. Support Transition Compact Neighborhoods in areas specified on the Transition Policy Area Place Types Map provided they comply with the Place Type standards and incorporate the following features:
  - i. A combination of housing types, including detached, duplex, triplex, quadruplex, and/or accessory units.
  - ii. Housing units that are smaller and more affordable and that address the County's unmet needs.
  - iii. Discernible variations in lot shape and building setbacks along residential street frontages, in a manner reflective of traditional villages and towns, to visually differentiate individual residential structures.
  - iv. Design concepts within units and neighborhoods that allow residents at different stages of their lives to remain in the community.
  - v. A walkable community design emanating from one or more community greens with minimal use of cul-de-sac streets and easy access to parks, playgrounds and amenities.
  - vi. Public trails and parks internal to the neighborhood and connecting to adjacent communities and public facilities.
  - vii. Extensive buffers screening the intensity of the development from surrounding roads and communities through the use of dense vegetation, earthen berms, and/or natural topography.

**TPA Policy 4: Non-residential uses will include uses that are compatible with resource protection, desired development patterns, and the rural landscape.**

Strategy

- 4.1 Provide for development of commercial, employment, and public uses in areas specified on the Transition Policy Area Place Types Map that achieve the desired development patterns and the character of the TPA.

Actions

- A. Require Industrial uses to:

- i. Be located only in locations consistent with the Place Types Map.
  - ii. Be visually concealed from adjacent roads and residential areas by siting buildings and uses to avoid ridgetops and high visibility areas and enclosing buildings and uses within a substantial, undisturbed, vegetated perimeter.
  - iii. Minimize the effects of noise, vibration, and odor.
  - iv. Have access to adequate infrastructure and roads.
  - v. Identify and protect environmental features and to follow, to the extent possible, the natural topography.
  - vi. Enhance water quality protection when near water supply reservoirs and associated streams.
- B. Continue to protect the extractive industry by maintaining a quarry notification overlay zoning district.
- C. Establish zoning regulations and design standards that ensure new development does not hinder the operation of quarries.
- D. Support Transition Community Centers in areas specified on the Transition Policy Area Place Types Map provided they are consistent with the Place Type standards and offer the following features:
  - i. Small footprint retail uses and no “big box” commercial retailers with the exception of grocery or drug stores.
  - ii. A compact pedestrian shopping and entertainment environment including active streets featuring relationships between interior and outdoor spaces, outdoor restaurant seating and vendor shopping on the street, complementary ground floor uses (such as retail rather than offices), and a high level of transparency and window space.
  - iii. Convenient and safe pedestrian connections to adjacent neighborhoods and public facilities.
  - iv. Extensive landscaping, particularly at the perimeter, to screen the project intensity from adjacent roads and communities.
  - v. Outdoor activity and community space.

**TPA Policy 5: Ensure that adequate infrastructure (e.g., including roads, utilities, and public facilities) and services are available to meet increased demands of new development.**

Strategy

- 5.1 Ensure adequate public facilities and services are available as demand is generated by new development.

Actions

- A. Evaluate residential development proposals against the available and forecasted capacity of public schools and other facilities and services through the projected buildout period of the application.
- B. Phase higher density residential development to allow the County to plan for facility

and infrastructure needs before the demand occurs, and help direct development to the areas of the County that offer greater fiscal and economic benefits.

- C. Precede each phase of development with a Comprehensive Plan Amendment or a community planning exercise to determine timing, appropriate land use changes, and/or public facility needs.
- D. Until such time as a subsequent phase is amended by adopting a Comprehensive Plan Amendment or a community planning exercise is completed for areas, as appropriate, all residential areas outside of the Phase 1 area shall be developed under the Transition Large Lot Place Type.
- E. Schedule the phasing in the following sequence unless determined otherwise in a Comprehensive Plan Amendment:
  - i. Phase 1: Lower Sycolin and Middle Goose Creek policy subareas; portions of the Lower Foley policy subarea designated for Transition Compact Neighborhood and Transition Community Center on the Transition Policy Area Place Type Map.
  - ii. Phase 2: Upper Broad Run and Red Hill policy subareas.
  - iii. Phase 3: Upper Foley and Lower Bull Run policy subareas; remaining portions of the Lower Foley policy subarea.

**TPA Policy 6:** The Board of Supervisors encourages no further expansion of the TPA boundaries beyond that included with the adoption of the Loudoun County 2019 Comprehensive Plan.

## Design Guidelines

The Design Guidelines are to build upon our current development patterns in a manner that allows innovative design and new responses to the market. The Design Guidelines are not meant to be prescriptive and are not intended to be treated as a checklist, but are instead meant to provide a framework for how the desired character of the TPA can be achieved, with the acknowledgement that other methods could achieve the intended results. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, proffers or any other design standards or regulations administered by Loudoun County.

*The goals of the TPA Design Guidelines are as follows:*

- Development should create attractive places within the TPA by working with existing topography and site features, responding to the local context, and reinforcing the landscape's character, rather than simply attempting to place suburban design onto the landscape.
- Development should use the landscape for benefits such as solar heat gain or shelter from wind.

- Buildings should be treated as parts of the landscape and attention given to their form and scale relative to their surrounding environment.

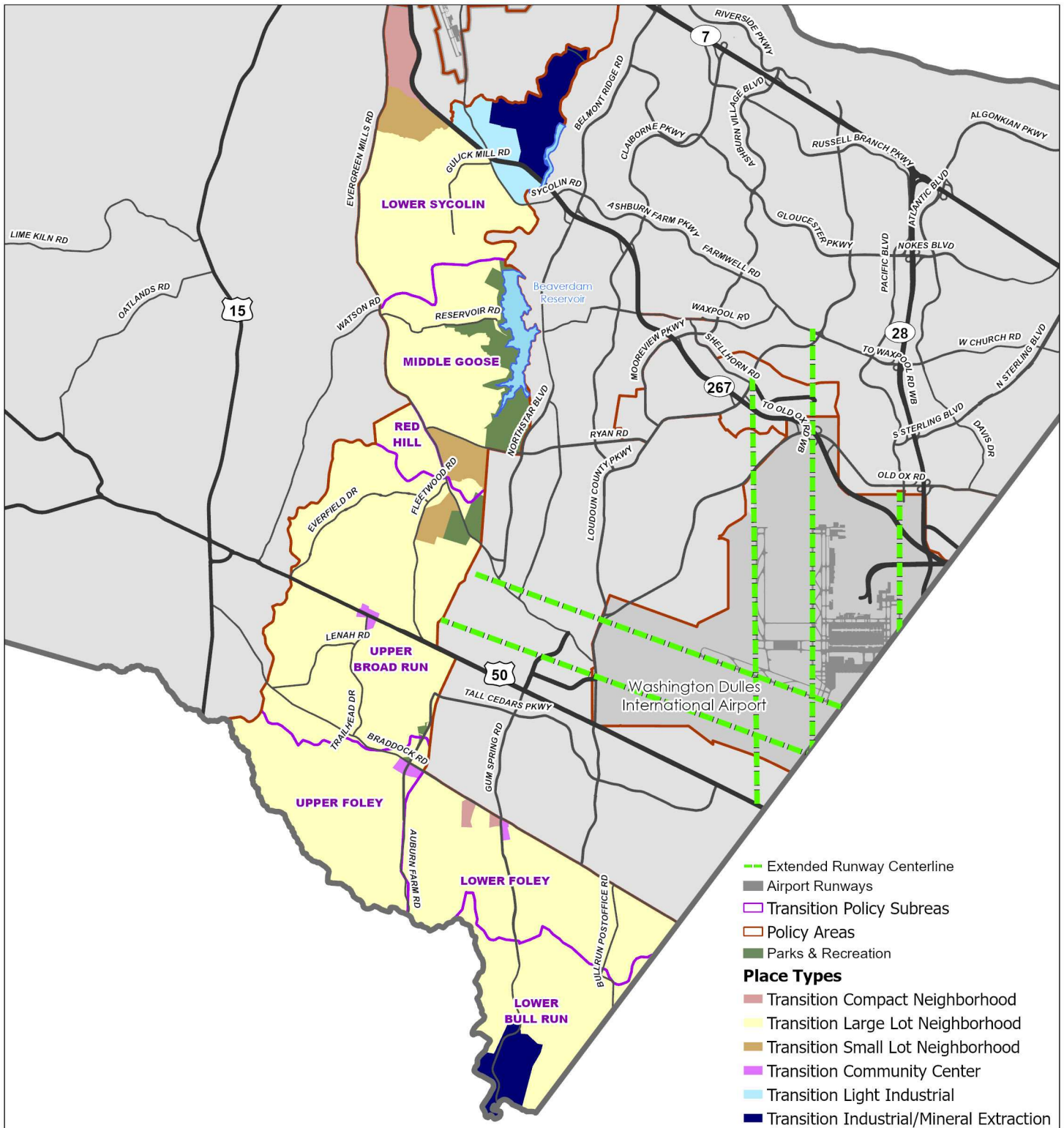
When using the guidelines care should be taken to analyze the impact a potential development may have on the landscape. Considerations should include both appearance and practical considerations such as proximity and quality of connections to utilities, community amenities, jobs, and housing to maximize the use of existing infrastructure and limit travel distances. The County encourages the use of a design process when planning development in the TPA that conserves and incorporates natural, environmental, and heritage resources into the site design. (See Appendix A for Design Guidelines for the TPA)

## **Place Types**

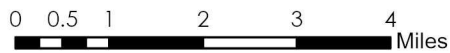
As described in the beginning of this chapter, the following Place Types have been designated for specific locations as displayed on the accompanying map. The Place Types will work in concert with the Design Guidelines and Policies, Strategies, and Actions of the TPA to fulfill the land use patterns and community characteristics intended for the area.



Loudoun County  
**Transition Policy Area**  
**Place Types**  
 2019 General Plan



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



Map Number 2023-061

# Transition Large Lot Neighborhood



Transition Large Lot Neighborhoods include projects such as Willowsford, Red Cedar and Evergreen, which offer detached homes and substantial open space in low-density communities. Agriculture and related uses are encouraged on these open spaces. Neighborhoods should offer a variety of house styles and sizes and, similarly, a variety of lot sizes and configurations. Development layouts follow land contours, incorporate natural features into the development, and protect sensitive resources. Extensive open space should partially conceal views of the new residential development from perimeter roadways and adjacent development and protect natural and cultural resources.

<b>Core Uses</b>	<b>Complementary Uses</b>	<b>Conditional Uses</b>								
<ul style="list-style-type: none"> <li>Large Lot Residential</li> <li>Clustered Residential Subdivision</li> <li>Accessory Residential Units</li> </ul>	<ul style="list-style-type: none"> <li>Agriculture</li> <li>Agricultural Supportive Businesses</li> <li>Equine Facilities</li> <li>Agritourism</li> <li>Parks &amp; Recreation</li> </ul>	<ul style="list-style-type: none"> <li>Civic, Cultural, &amp; Community</li> <li>Public Facilities</li> <li>Special Activities</li> </ul>								
<b>Preferred Mix of Uses</b>										
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Possible Ranges:</p> <ul style="list-style-type: none"> <li>Res: 85-95%</li> <li>Non-Res: 0 - 10%</li> <li>Public/Civic: 5%+</li> </ul> </div> <div style="flex: 2; text-align: center;"> <table border="1" style="margin: 0 auto; border-collapse: collapse;"> <caption>Preferred Mix of Uses Data</caption> <thead> <tr> <th>Use Type</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Residential</td> <td>90%</td> </tr> <tr> <td>Non-Residential</td> <td>5%</td> </tr> <tr> <td>Public/Civic</td> <td>5%</td> </tr> </tbody> </table> </div> </div>			Use Type	Percentage	Residential	90%	Non-Residential	5%	Public/Civic	5%
Use Type	Percentage									
Residential	90%									
Non-Residential	5%									
Public/Civic	5%									

## DESIGN CHARACTERISTICS

### Context

Low-density residential neighborhoods with significant open spaces allowing agricultural uses and the protection of adjacent environmentally sensitive areas such as the reservoirs and stream corridors.

**Street Pattern:**

Contour forming, Irregular, Fragmented Parallel

**Block Length:**

Varies

**Building Setback:**

Varies

**Parking:**

Driveway, garage, or on-street

**Design Amenities:**

Trails, street trees, common open spaces

**Open Space:**

50% of the site-Recreational, Agricultural, and/or Natural, Environmental, and Heritage. In the Bull Run policy subarea, 70% of a site shall be retained as open space.



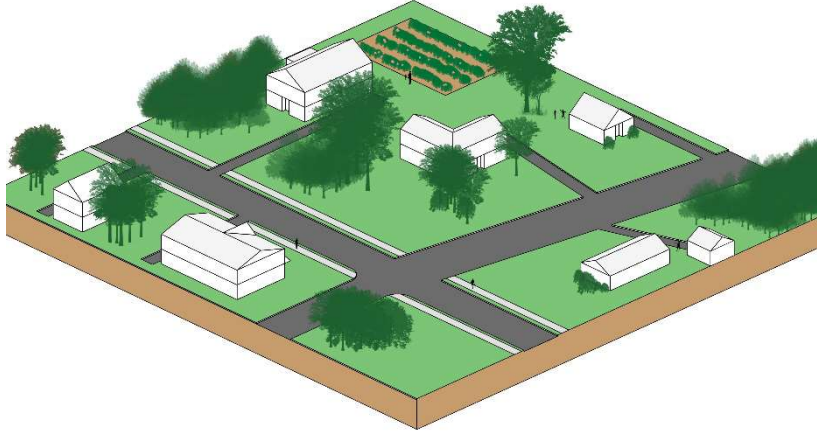
*An example plan view of a Transition Large Lot Neighborhood*

**Place Type Rendering**

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total Nonresidential FAR: Up to 0.1**

**Building Height: 1-3 stories**



Target Residential Density	
Lower Sycolin	1 du/10 ac
Middle Goose Creek	1 du/10 ac
Red Hill	1 du/3 ac
Lower Bull Run	1 du/3 ac
Upper Broad Run	1 du/1 ac or 1 du/3ac
Upper Foley	1 du/3 ac
Lower Foley	1 du/3 ac

**Transition**

Transition Large Lot Neighborhood projects should be surrounded by natural buffers that visually screen the development from view of surrounding roads and from other developments.



# Transition Small Lot Neighborhood

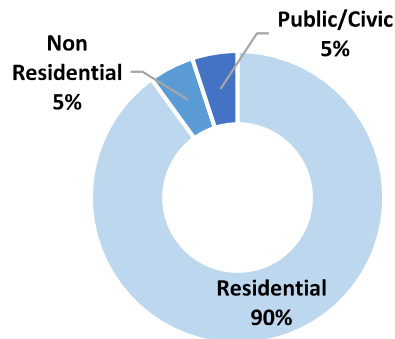


Transition Small Lot Neighborhoods include residential neighborhoods arranged in a cluster arrangement that includes a focal point such as a civic use, park, or green. The predominant use is single family detached housing. The lot pattern within each community should align with the topography and key environmental features to minimize the visibility of the structures. Open space and natural vegetation are the dominant visual features and provide public and private trails, passive and active recreation, and significant perimeter and environmental buffers.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>Single Family Detached Residential</li> </ul>	<ul style="list-style-type: none"> <li>Agriculture</li> <li>Agricultural Supportive Businesses</li> <li>Equine Facilities</li> <li>Live/Work Units</li> <li>Accessory Residential Units</li> <li>Parks &amp; Recreation</li> </ul>	<ul style="list-style-type: none"> <li>Retail &amp; Service Commercial (supportive)</li> <li>Institutional</li> <li>Civic, Cultural, &amp; Community</li> <li>Public Facilities</li> <li>Special Activities</li> </ul>

**Preferred Mix of Uses**

- Possible Ranges:
- Res: 85-100%
  - Non-Res: 0 - 10%
  - Public/Civic: 5%+



## DESIGN CHARACTERISTICS

### Context

Neighborhoods offering assorted lot configurations, sizes, and shapes with substantial open space, offering easy access to trails and natural areas internal to the neighborhood and connecting adjacent communities. The community is to be surrounded by extensive wooded buffers maintaining the rural appearance of surrounding roads.

**Street Pattern:**

Fragmented Parallel, Contour Forming, Irregular

**Block Length:**

Varies

**Building Setback:**

Medium to deep

**Parking:**

Driveway, garage, or on-street

**Design Amenities:**

Sidewalks, street trees, community greens, gardens, playgrounds other common open spaces

**Open Space:**

50% of the site-Recreational (passive and active) and/or Natural, Environmental and Heritage



*An example plan view of a Transition Small Lot Neighborhood*

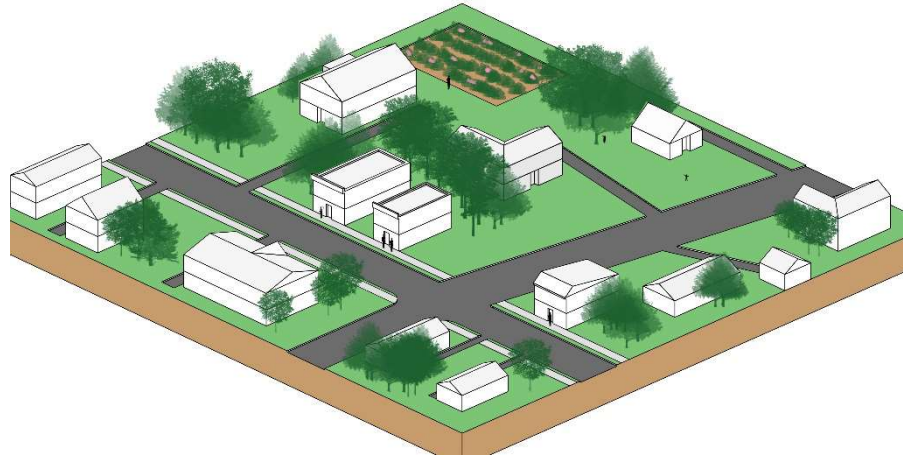
**Place Type Rendering**

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: Up to 4 du/ac**

**Total Nonresidential FAR: Up to 0.2**

**Building Height: 1-3 stories**



**Transition**

Transition Small Lot Neighborhood projects should be surrounded by natural buffers that visually screen them from view of surrounding roads and from other developments.

## Transition Compact Neighborhood



Transition Compact Neighborhoods include a variety of single family detached, duplex, triplex and accessory dwelling unit homes arranged around a focal point such as civic use, park, green or small commercial center. Duplex, triplex, and quadruplex housing should be designed to be compatible with – and should be dispersed throughout – the single family detached residences. If included, neighborhood-serving retail or employment space (such as shared office space) should be situated in conjunction with civic space or a central park or green to create a neighborhood core or focal point.

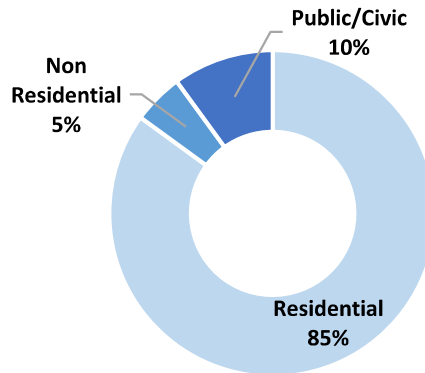
The lot pattern within each community should primarily consist of small lots, and a mix of housing types along each street frontage and within each block. A pattern of interconnected streets is intended to provide a walkable community. Open space and natural vegetation are the dominant visual features with significant perimeter and environmental buffers and should provide publicly accessible trails and passive and active recreation opportunities.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Single Family Detached Residential</li> <li>• Single Family Attached Residential (duplex, triplex, quadruplex)</li> </ul>	<ul style="list-style-type: none"> <li>• Civic, Cultural, &amp; Community</li> <li>• Entertainment Commercial</li> <li>• Office</li> <li>• Accessory Residential Units</li> <li>• Parks &amp; Recreation</li> </ul>	<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial</li> <li>• Public Facilities</li> <li>• Special Activities</li> </ul>

### Preferred Mix of Uses

Possible Ranges:

- Res: 80-90%
- Non-Res: 0-10%
- Public/Civic: 10%+





## DESIGN CHARACTERISTICS

### Context

Neighborhoods providing assorted lot configurations, sizes and shapes, and smaller, intermixed housing types and styles, characteristic of historic towns and neighborhoods. Communities are to be walkable and residents and the public are to have easy access to parks, playgrounds, and trails internal to the neighborhood and connecting adjacent communities. The community is to be surrounded by extensive wooded buffers maintaining the rural appearance of surrounding roads.

**Street Pattern:**

Rectilinear Grid, Fragmented Parallel, and Contour Forming

**Block Length:**

400-800 feet

**Building Setback:**

Varies

**Lot Sizes:**

Less than 10,000 square feet

**Parking:**

Garage, on-street, or alley-oriented

**Design Amenities:**

Sidewalks, street trees, common open spaces

**Retail and Service:**

Neighborhood - individual uses appropriately sized to serve the surrounding community.

**Open Space:**

50% of the site-Recreational, Community, and/or Natural, Environmental and Heritage

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: 3-5 du/ac**

**Total Nonresidential FAR: Up to 0.2**

**Building Height: 1-3 stories**



*An example plan view of a Transition Compact Neighborhood*

**Transition**

Where the Compact Neighborhood is adjacent to less intensive residential uses, Compact Neighborhoods should use large setbacks to separate uses or create natural and landscape transitions.

# Transition Community Center



Transition Community Centers consist of a pedestrian-scale commercial development that provides retail sales, entertainment, and civic functions. The commercial center will feature a walkable street pattern to create a pedestrian shopping and entertainment environment with convenient and safe pedestrian and vehicular connections to adjacent neighborhoods, extensive landscaping at the perimeter, and outdoor activity and community space. Any residential component will consist of multifamily units over commercial uses. Auto-oriented uses would be located away from pedestrian areas unless incorporated into the mixed-use buildings. Primary entrances and exits for automobiles are restricted to main road corridors and not residential streets.

Core Uses	Complementary Uses	Conditional Uses				
<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial</li> <li>• Civic, Cultural, &amp; Community</li> <li>• Entertainment Commercial</li> <li>• Public Facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Office</li> <li>• Institutional</li> <li>• Multi-Family Residential (over ground floor commercial; live/work units)</li> <li>• Parks &amp; Recreation</li> </ul>	<ul style="list-style-type: none"> <li>• Special Activities</li> </ul>				
<b>Preferred Mix of Uses</b>						
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Possible Ranges:</p> <ul style="list-style-type: none"> <li>• Res: 0-25%</li> <li>• Non-Res: 70-95%</li> <li>• Public/Civic: 5%+</li> </ul> </div> <div style="flex: 1; text-align: center;"> <table border="1" style="margin: 0 auto; border-collapse: collapse;"> <tr> <td style="text-align: center;">Public/Civic</td> <td style="text-align: center;">5%</td> </tr> <tr> <td style="text-align: center;">Non Residential</td> <td style="text-align: center;">95%</td> </tr> </table> </div> </div>			Public/Civic	5%	Non Residential	95%
Public/Civic	5%					
Non Residential	95%					

## DESIGN CHARACTERISTICS

### Context

Pedestrian-focused retail centers with small footprint retail uses, active street frontages and outdoor activity. No “big box” retailers, with the exception of grocery or drug stores. Potential for residential over commercial uses, with live/work spaces.

**Street Pattern:**

Rectilinear Grid

**Block Length:**

200-800 feet

**Building Setback:**

Minimal but may vary

**Parking:**

Surface or structured, on-street, or alley-oriented

**Design Amenities:**

Sidewalks, street furniture, street trees, lighting, common open spaces

**Retail and Service:**

Two and three-story buildings with active ground floor retail and entertainment uses, few single story buildings integrated into the compact, pedestrian-oriented environment.

**Open Space:**

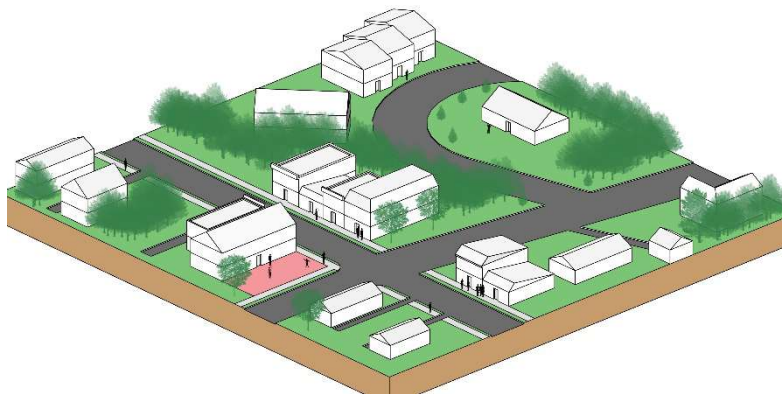
50% of the site- Recreational, Community, and/or Natural, Environmental and Heritage

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total FAR: Up to 0.3**

**Building Height: 1-3 stories**



**Transition**

The Transition Community Center, should complement and link via sidewalks and trails to adjacent residential neighborhoods. A substantial part of the required open space should provide perimeter screening such as a park or recreation area against other communities and adjacent roads. Transitions should be gradual, particularly where natural or man-made buffers are not available. Appropriate transitional techniques include variations in building orientation, height step down, and creative and extensive use of landscaping and natural features.

# Transition Light Industrial



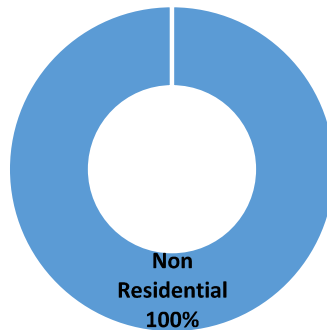
Transition Light Industrial areas provide opportunities for low-traffic industrial and employment uses. Predominant uses are data centers, contractor establishments, and small-scale assembly or production. Appropriate uses do not generate excessive noise or air pollution or require outdoor storage. Open space that creates effective visual buffers and environmental protection on the site will encompass the business. Trails and passive parks are also appropriate.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Light Production</li> <li>• Data Centers</li> <li>• Flex Space</li> <li>• Contractor</li> </ul>	<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial (Ancillary retail)</li> <li>• Institutional</li> </ul>	<ul style="list-style-type: none"> <li>• Civic, Cultural, &amp; Community</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

### Preferred Mix of Uses

Possible Ranges:

- Res: 0%
- Non-Res: Up to 100%
- Public/Civic: 0%+



## DESIGN CHARACTERISTICS

### Context

Industries and businesses within an environment dominated by open space of established forests or thickly vegetated buffers that screen such uses from roads and adjacent development.

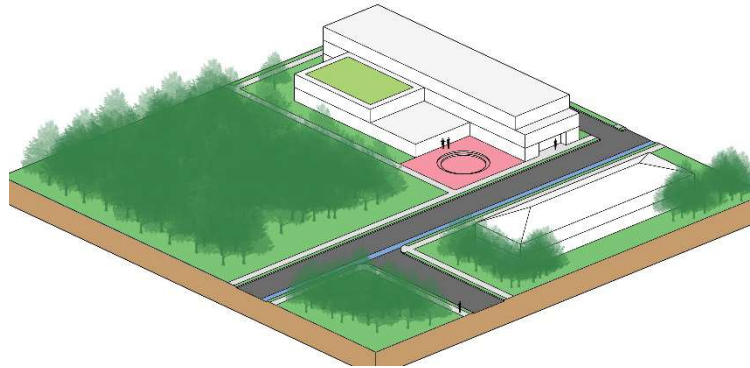
<p><b>Street Pattern:</b> Rectilinear Grid, Irregular, Contour Forming</p> <p><b>Block Length:</b> Varies</p> <p><b>Building Setback:</b> Varies</p> <p><b>Parking:</b> Surface</p> <p><b>Design Amenities:</b> Sidewalks, street trees, shade trees, lighting, crosswalks, plazas, bike racks</p> <p><b>Open Space:</b> 50% of the site-Recreational (trails), Community (outdoor seating, plazas), and/or Natural, Environmental and Heritage</p>
---

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total Nonresidential FAR: Up to 0.6**

**Building Height: 1-3 stories**



### Transition

Building heights should step down appropriately to less intense residential uses and outdoor activities, noise generators separated from residential uses by buildings, berms and vegetation. Certain employment uses that may not be compatible with adjacent residential uses, such as data centers, should have transitional uses located in between. Transition Light Industrial projects will be visually screened from view of roads and separated from adjacent residential development and sensitive environmental and water supply reservoirs by large wooded buffers, berms, and distance.

# Transition Industrial/Mineral Extraction



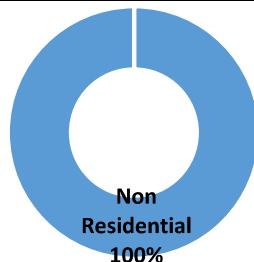
As a primary industry, mineral extraction should be supported and protected as long as the quarries remain productive. Predominant uses are quarries, large-scale public facilities, and complementary manufacturing operations. Such uses are generally incompatible with residential development and considerable screening and setbacks are necessary to protect their viability.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• General Manufacturing and Assembly</li> <li>• Data Centers</li> <li>• Research and Development</li> <li>• Outdoor Storage</li> <li>• Public Facilities</li> <li>• Quarry</li> </ul>	<ul style="list-style-type: none"> <li>• Office</li> <li>• Outdoor Manufacturing</li> <li>• Retail &amp; Service Commercial (Ancillary retail)</li> </ul>	<ul style="list-style-type: none"> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

### Preferred Mix of Uses

Possible Ranges:

- Res: 0%
- Non-Res: Up to 100%
- Public/Civic: 0%+





## DESIGN CHARACTERISTICS

### Context

Existing quarries and quarry-related industries and businesses surrounded by substantial open space.

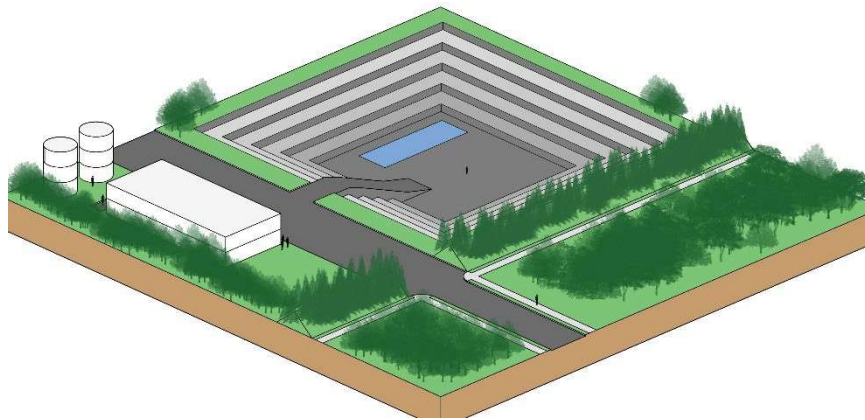
<p><b>Street Pattern:</b> Rectilinear Grid, Contour Forming</p> <p><b>Block Length:</b> 300-1,000 feet</p> <p><b>Building Setback:</b> Deep</p> <p><b>Parking:</b> Surface</p> <p><b>Design Amenities:</b> Sidewalks, street trees, shade trees</p> <p><b>Open Space:</b> 50% of the site-Natural, Environmental and Heritage</p>
---

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total Nonresidential FAR: Up to 0.6**

**Building Height: 1-4 stories**



### Transition

Transitions between Industrial/Mineral Extractive uses and other developments, in particular adjacent residential neighborhoods, are critically important to the viability of long-term industrial operations. Setbacks, buffering, and natural open space can reduce impacts by blending the edges of Industrial/Mineral Extraction developments with surrounding developments, providing softer transitions than structural buffers. Storage and loading areas are to be oriented away from and screened from streets and adjacent uses. Industry/Mineral Extraction projects should be separated from adjacent development and sensitive environmental and water supply reservoirs by wide, wooded buffers, berms, and distance.

# Rural Policy Area

## Vision

The Rural Policy Area (RPA) is an enduring rural landscape that is characterized by a unique composite of natural and man-made environments, rural economy uses, working agricultural lands, open space, and a limited residential base.

## Introduction

The RPA occupies the western half of the County and is the largest of the County's Policy Areas. It encompasses approximately 230,000 acres, representing about 67 percent of the County's total land area. The RPA comprises a blend of low-density residential, working farms, rural economy uses, pastoral landscapes, forested areas, mountains, and wildlife habitats. The RPA encompasses six of the County's seven incorporated Towns, 12 existing Rural Historic Villages, and numerous smaller crossroad communities. As of April 1, 2017, the population of the RPA is approximately 40,400 people, representing approximately 10 percent of the County's total population.

The RPA is divided into two areas—the Rural North and the Rural South. Each of these distinct geographic areas (see Rural Policy Area Place Types Map) has different base residential densities in response to their dominant rural land use and development patterns. The Rural North (geographically defined as north of Goose Creek and the North Fork of Goose Creek to the County border with Montgomery, Frederick, and Washington Counties, Maryland; Jefferson County, West Virginia; and Clarke County, Virginia) is characterized by a mix of smaller lots that are interspersed with larger parcels in agricultural use. The Rural North, proximate to the Towns within the Route 7 Corridor, has the highest concentration of residential development and a more developed paved roadway network with easy access to commuter routes. Additionally, the Route 15 corridor, both north and south of the Town of Leesburg, has experienced substantial residential growth since the Board adopted the *Revised General Plan* (RGP) in 2001. The Rural South (geographically defined generally as south of Goose Creek and the North Fork of Goose Creek to the County border with Clarke, Fauquier, and Prince William Counties, Virginia) is characterized by an existing large lot pattern and represents the center of Loudoun's prominent equine industry. The Rural South contains a number of large working farms that are accessed by a network of mostly unpaved rural roads. The Rural South contains Loudoun County's largest amount of permanently protected land that is held under voluntary conservation easements. Both the Rural North and Rural South are marked by a scattering of Rural Historic Villages and small crossroad communities, which provide limited retail and commercial services to rural residents and visitors.

Approximately 700 miles of public roads maintained by the Virginia Department of Transportation (VDOT) serve the RPA. These roads range across all classifications, including arterials that feature greater access control to facilitate longer distance travel at higher posted speeds; collector roads that have less access control in order to balance parcel access and mobility; and local secondary roads that primarily provide access to individual parcels. Unpaved gravel secondary roads constitute approximately 255 miles of the County's rural road network. The County, with the support of residents, has made a conscious effort to preserve portions of the historic gravel road

network, which contribute to the character of the rural landscape and provide opportunities for recreational users such as equestrians, bicyclists, and pedestrians.

VDOT, in collaboration with the County, has worked to maintain the delicate balance between service needs and the preservation of the aesthetic character of the road network in the RPA, providing adequate transitions from major rural highways to main streets to rural paved and unpaved road segments. Specific long-range plans and local projects have generally sought to maintain two-lane rural section roadways along most rural corridors, while providing improvements to major commuter routes. These include the Virginia Scenic Byway program; national and state historic district designations; traffic calming projects at appropriate locations; the VDOT Rural Rustic Roads Program; and the incorporation of low-impact modern improvements, such as roundabouts, in lieu of traffic signals and interchanges. As increasing traffic volumes continue to place stress on the rural road network, the County will need to make comprehensive and strategic decisions regarding best practices to provide reasonable mobility, while protecting the rural character and scenic quality of roads in the RPA (see *Loudoun County 2019 Countywide Transportation Plan*).

The Rural North and Rural South are home to a centuries old farming community that shaped the physical landscape and the social and economic fabric of Loudoun. However, over the past 30 years, as portions of the County and the region have become more urbanized, the RPA has faced increased challenges related to demographic changes, land use, economics, and transportation improvements, thus facilitating and enabling the conversion of land for rural residential subdivisions at an increasing rate as some residents seek an alternative to urban life. The adoption of the RGP in 2001 and the accompanying down-zoning of the majority of the land in western Loudoun in 2003 and in 2006, marked a dramatic turn in the County's effort to limit residential development in the RPA and established an approach for land preservation tied to the creation of a viable rural economy and low-density development options, including the clustering of homes to preserve the rural character of the land. The *Loudoun County 2019 General Plan* (General Plan) carries this approach forward.

## Rural Residential

A variety of residential development options exist within the Rural Policy Area, including conventional subdivision, subordinate lots, and rural clusters which permit different densities. Among the existing development options, rural clusters remain the preferred residential development pattern in the RPA because these designs better preserve the natural features and open character of the land by tightly grouping homes on smaller lots so that a majority of the land is available for rural economy uses, agriculture, and/or open space. The concentration of homes in a rural cluster also minimize the amount of roads, clearing and grading, and the overall footprint of development, compared to a conventional by-right subdivision which requires placement of homes on a uniform size lot dispersed over an entire property.



*Birch Hollow Hamlet, Hillsboro. Clustered residential lots with remainder working farm on 109 acres.*

Between 2000 and 2016, 5,653 residential units were built in the RPA. The “build out” analysis for the RPA, which reflects conditions as of July 1, 2016, identifies 91,000 acres of land uncommitted to development projects. This results in the potential for up to 11,643 residential units under current policy and entitlements. The acreage calculation includes parcels that are partially or fully developable and excludes floodplain, conservation easements, mountainside, and steep slope, which do not have development potential. The forecasted development from 2016 to 2040 in the RPA is 7,500 residential units based on current trends and the base density allowed by current zoning, which leaves approximately 4,000 residential units to be developed after 2040. The 2040 forecasts and the ultimate residential buildout for the RPA may be much lower than projected above if property owners continue to retain and preserve large areas of land for agricultural, equine activities, open space, and rural economy uses. Land trusts are anticipated to continue establishing conservation easements on properties in the RPA, reducing the residential development potential allowed by current zoning. Current and future county policies and initiatives, including land use-based property tax assessments and land conservation programs, may also affect future development potential in the RPA.

## Rural Economy

The County’s land development approach for the RPA is to limit residential development so that land will remain available for the continued operation, expansion, and establishment of agricultural and rural economy uses that preserve the rural character of the landscape and support the County’s environmental goals. Loudoun’s rural economy has grown to become a collection of business uses that currently include: crop and livestock production, forestry, horticulture and specialty farm products, farm markets and wayside stands, the equine industry, orchards, vineyards, farm wineries, cideries, and breweries, hospitality services such as farm-to-table restaurants, rural

resorts, bed and breakfasts, country inns, banquet/event facilities, private camps and parks, and other similar uses. These rural economy uses largely depend on the agricultural productivity, scenic quality, and rural character of the RPA to derive income to sustain business activities. Additionally, a range of businesses providing indirect support and services to agricultural, forestal, horticultural, and animal husbandry activities also contribute to the rural economy. These agriculture-supportive uses include farm machinery sales and repair services, veterinary services, blacksmiths, agricultural product storage and processing, feed and seed supply, and similar uses. The importance of all these rural businesses to Loudoun County has led to the implementation of a business development plan for the County's rural economy that aims to double the growth of the County's rural economic sectors by 2023. The business development plan strives to create an environment for high value agricultural production that supports the equine and tourism industries, maintains prime farmland, and recognizes that commercial growth in eastern Loudoun is augmented by a thriving rural economy in western Loudoun (see [\*The Long View, A Business Development Plan for Loudoun County's Rural Economy\*](#)).

Although many rural economy uses rely on wired or wireless telecommunication networks to support their daily business operations, many areas of the RPA lack adequate high-speed connections. The County, through its strategic initiatives, has identified the provision of high-speed wired and wireless telecommunication networks, including broadband technology, as a priority to support rural businesses and residents in the RPA.

The 2017 Federal Census of Agriculture identified 1,259 farms in Loudoun County (gross income of \$1,000 or more) with a total of approximately 121,932 acres of farmland in production. Almost three quarters of these farms (875) were less than fifty acres in size with the largest percentage of farms being between ten and fifty acres in size. The overall number of farms and acres in farmland production in the County has declined by approximately ten percent since the 2012 Federal Census



*One of Loudoun County's working farms in the RPA.*

of Agriculture, when 1,396 farms with a total of 134,792 acres of farmland in production were identified. This data illustrates a number of changes and trends in agriculture: 1) a shift in the type of farming in the County as land and operational costs continue to rise, 2) the subdivision of larger farms into residential lots, and 3) a continuing decline in the amount of farmland and the number of farms and farmers. In light of the census data, County leaders and residents remain committed to keeping rural Loudoun a vital, identifiable place and continue to work to protect and preserve this valuable land resource to sustain the rural economy and support the County's agricultural, equine, and tourism industries.

In response to market trends, many farmers in the County have shifted to the direct marketing of agricultural products to consumers through either on-farm sales and/or farmers markets to increase

profitability. These specialty farms tend to be smaller in size than traditional farms that produce row crops or raise livestock. These farms include a number of pick-your-own farms which may have fruits, vegetables, flowers, Christmas trees, and other farm-grown products available to the public. A number of farms have also implemented Community Supported Agriculture (CSA) programs where people buy a subscription from a farmer to receive a weekly share of local seasonal produce, meats, and other products (depending on the farmer's offerings).

The equine industry is a major component of the rural economy. Loudoun County leads the state in the number of horses, and the equine industry is the County's largest agricultural employer providing thousands of jobs associated with the care of these animals and the operation of barns and stables. The Virginia Tech Marion DuPont Scott Equine Medical Center is located north of Leesburg, with Morven Park, Glenwood Park, and Oatlands providing regional venues for horse events. Other smaller stables are scattered throughout the County, which provide private lessons, boarding, trail rides, and camps, and host smaller events.

Loudoun County has the highest concentration of wineries and acres in grapes in Virginia, with over 45 wineries and over 1,000 acres in grape production as of 2017. Loudoun County has been marketed as "DC's Wine Country", though it also has the highest number of breweries and leads the state in hops production. The County has a total of 28 breweries, seven of which are farm breweries located within the RPA. In recent years, the region's first hops processing center and Virginia's first dedicated malting operation opened near Lucketts. As of 2017, there are 10 hops yards in the County with 16 acres in production, and there are two growers cultivating 140 acres of malting grain for the production of beer and distilled spirits. Farm wineries, breweries and cideries that grow their own products maintain land in agricultural use which protects the rural character of the RPA and supports rural tourism.

The RPA is home to a number of hospitality and tourism businesses, which provide thousands of jobs and contribute millions of dollars to the local economy through visitor spending on restaurants, retail goods, lodging, and the hosting of weddings and events. County-sponsored events such as the Spring and Fall Farm Tours, Stable Tours, Wine Trail, Ale Trail and Artisan Trail allow visitors to enjoy self-guided driving tours which support local growers, producers and artisans. Numerous community events such as the Bluemont and Waterford fairs draw thousands of residents and visitors to western Loudoun annually. Heritage tourism is also an important contributor to the County's economy, which include the Journey Through Hallowed Ground National Heritage Area and National Scenic Byway, the Waterford National Historic Landmark District, Balls Bluff Battlefield and National Cemetery, Morven Park, Oatlands, Aldie Mill, as well as other historic sites, museums and battlefields. Like many of Loudoun's other rural business uses, these hospitality and tourism businesses rely on the natural, scenic, and rural character of the RPA to attract visitors. Therefore, it is critical to maintain the natural, environmental, and heritage resources that provide the setting and context for our rural tourism economy.

## **Farmland Preservation and Protection**

To support the rural economy and ensure that agriculture continues as a long-term use in the RPA, the County will continue to develop and support voluntary participation in programs that provide assistance and reduced tax burdens to landowners. Such programs and measures as the Land Use

Assessment Program, the Agricultural and Forestal District (AFD) program, and public/private conservation easements will be used to encourage landowners to use their land to expand the rural economy, rather than convert it to residential use. These programs also assist in the protection of the RPA's unique manmade and natural environment, which directly benefit the rural economy.

The County's Land Use Assessment Program and AFD program are tools used to protect agricultural lands and forests. The Land Use Assessment Program provides tax relief to landowners to protect farmland for future agricultural use and to protect historic and scenic resources for the economic and cultural benefits derived from their preservation. The AFD program limits the subdivision of large, farmable acreages and forested lands (typically 20-40 acres), and prohibits cluster subdivisions. While the County's Land Use Assessment Program and the AFD program support keeping land in production and/or open space for a specified number of years, they are voluntary programs that do not preserve land in perpetuity. The primary means of preserving agricultural land and open space permanently is through the establishment of conservation easements on individual properties, which restrict residential and non-agricultural uses. Conservation easements currently preserve over one-third of the acreage within the RPA, the vast majority of which are held by private land trusts (see Conservation Easements in Rural Policy Area: 2019 Map). The County should commit to supporting efforts to increase the total acreage of land held in conservation easements as part of an overall land use strategy to further reduce density in the RPA, and ensure that farmland and open space are available in perpetuity for future generations. The County may consider cost-share initiatives to assist in establishing conservation easements and/or public/private partnerships with existing land trusts to leverage efforts and funding to support the recordation of additional conservation easements.

## **Future of Rural Strategy**

Loudoun County and its citizens continue to recognize the importance of maintaining and preserving the farming and equine heritage, cultural and natural resources, open space, and scenic beauty of the RPA as a fundamental component of the County's identity. The RPA contributes to the overall economic vitality of the County and quality of life of its residents. The General Plan, carries forward the growth management approach for the RPA established in the RGP, which seeks to limit residential growth, retain farmland, and sustain the rural economy. This approach has contributed to the County's economic success through attracting businesses, residents, and visitors while maintaining the character of the RPA. The strength of the agricultural sector, equine industry and the rural economy is a critical component of supporting the economic development and fiscal policy goals of the County. In the future, development pressures and the incremental loss of productive agricultural land to residential development will require continued monitoring by the County to maintain the RPA's unique character.

## Policies, Strategies, and Actions

Unless otherwise specified, the following Policies, Strategies, and Actions apply only within the RPA.

### Land Use & Development

**RPA Policy 1:** Foster land use and development patterns that incorporate natural, cultural, heritage, and agricultural resources to preserve character-defining features of the rural landscape while providing opportunities for rural living and businesses.

#### Strategy

- 1.1. Support uses that protect, preserve, and enhance natural areas and open space, retain farmland and the vitality of the rural economy, and foster a high quality of rural life for residents.

#### Actions

- A. Provide incentives for the consolidation of underutilized or undeveloped small lots into larger parcels for agricultural and rural economy uses.
- B. Consider cost-share initiatives to assist in establishing conservation easements, in order to reduce the land that is available for residential development and to provide landowners with financial options to support working farms, rural economy uses, and/or stewardship of the land.

### Rural Residential

**RPA Policy 2:** Limit residential development to protect the land resource for agricultural operations, rural economy uses, and open space uses; minimize traffic impacts; and reduce the demand for additional public facilities and services.

#### Strategy

- 2.1. Where residential development does occur in the RPA, it should be designed to preserve the rural character, work with the land form to preserve and protect natural features, and conserve land for agriculture, equine uses, rural economy uses, passive recreation, and open space.

#### Actions

- A. Evaluate and revise zoning regulations and design standards to improve the design of subdivisions and clustered residential development by incorporating natural features and buffering from roadways and scenic byways.
- B. Encourage the provision of publicly accessible and connected open space.
- C. Educate property owners about alternatives to residential subdivision by providing information on conservation easements, the Land Use Assessment Program, and other land conservation programs to keep rural properties intact and productive.



## Rural Economy

**RPA Policy 3: Agricultural and rural business uses that are compatible with the predominant land use pattern will be developed in a manner that is consistent with the County's growth management, economic, and environmental goals.**

### Strategy

- 3.1. Ensure compatibility of rural economy uses through the evaluation of the scale, use, intensity, and design (site and building) of development proposals in comparison with the dominant rural character and adjacent uses.

### Actions

- A. Evaluate and revise zoning regulations and development standards for rural economy uses. Such regulations and standards will address traffic capacity, safe and adequate road access, number of employees, site design standards (e.g., land disturbance, buffering, use intensity, siting, and architectural features), and public health, safety, and welfare.
- B. Consider the establishment and/or expansion of existing commercial, industrial, and institutional uses by Special Exception if the use and/or expansion: 1) is compatible in scale, use, and intensity with the surrounding rural environment, 2) uses building forms, massing, and architectural styles that reflect the surrounding rural character 3) preserves ridgetops, natural resources, farmland, and open space, and 4) meets applicable zoning regulations and development standards.
- C. Non-agriculturally related commercial uses may be permitted by Special Exception if the use is compatible in scale and intensity with the agricultural and rural character of the area; poses no threat to public health, safety, and welfare; and helps to preserve farmland, open space, and/or continued agricultural operations.

### Strategy

- 3.2. Promote the retention and development of rural business uses that sustain the rural economy and support the County's agricultural, equine, and tourism industries.

### Actions

- A. Adopt zoning regulations and design standards that include new types of rural business and agricultural uses, permit flexibility for the sale of farm products, and promote rural tourism, hospitality uses, and similar kinds of rural business uses that are compatible with the character of the RPA.
- B. Evaluate and revise zoning regulations and design standards to permit a variety of accessory residential unit types, such as accessory apartments for seasonal farm laborers and year-round tenant housing, that support the rural economy.
- C. Create zoning regulations and design standards for existing and new types of rural recreational uses to evaluate their appropriateness and ensure their compatibility with the character of the RPA.
- D. Develop County parks with trail networks, cross-country courses, and equestrian riding rings or other equestrian-related features.

- E. Develop a publicly accessible multi-use trail network (i.e., pedestrian, bicycle, and equestrian) to link private and public lands in the RPA in partnership with nonprofit entities, landowners, and developers of rural properties.
- F. Develop a strategy to facilitate the development of high-speed wired and wireless telecommunication networks, including broadband technology, to support rural businesses and residents in the RPA.

Strategy

- 3.3. Promote and expand agricultural enterprises and the rural economy, and attract rural entrepreneurs to locate in Loudoun.

Actions

- A. Promote rural business sectors and community events to support rural tourism, showcase the rural economy, and strengthen the economic vitality of rural businesses, villages, and towns.
- B. Develop a coordinated service approach to assist rural landowners in the review and development of proposals to maintain agricultural operations, preserve the agricultural potential of farmland, institute farm and rural business plans, and assist in filing applications, which support agriculture, agricultural activities, and the rural economy.
- C. Develop additional incentives to retain and encourage agricultural enterprises and support land preservation.
- D. Retain the Rural Economic Development Council (REDC) as an advocacy and advisory committee on initiatives, programs, and policies that affect the economic growth and development of rural Loudoun County.
- E. Support public education and job training in agriculture-based careers to ensure a stable agricultural work force and promote the region's agricultural and tourist based economy.
- F. Facilitate the provision of appropriate on-site housing options for farm interns and apprentices in support of agricultural workforce development.
- G. Develop an update process to ensure the Loudoun County Economic Business Development Strategy is updated on a regular basis.

Strategy

- 3.4. Maintain the Land Use Assessment Program to provide property tax relief to retain and support agriculture, horticulture, forestry, and open space as critical components of the RPA.

Actions

- A. Regularly review, update, and enhance the Land Use Assessment Program and other voluntary agricultural programs, such as the Agricultural and Forestal District (AFD) program, to strengthen the rural economy, preserve rural character, and maintain the viability of farming.

Strategy

- 3.5. Promote and encourage the preservation, rehabilitation, and repurposing of farm buildings and structures to maintain infrastructure for future agricultural enterprises and rural economy uses. Where possible, rural business uses should locate in existing agricultural and historic structures.

Action

- A. Adopt zoning regulations and design standards that facilitate the use of existing agricultural and historic structures.

Strategy

- 3.6. Support and increase farming activities and maintain a resilient food network for local consumption.

Actions

- A. Promote community supported agriculture (CSA); the direct sale of farm products between farmers and local consumers including farmers markets, restaurants and retailers; and the establishment of a permanent year-round indoor farmers market in the eastern portion of the County.
- B. Facilitate effective processing, distribution, and marketing of locally grown products.
- C. Promote best practices in farming, including adapting to new crops, livestock, and technology, to address market demands and diversify agricultural production.

Strategy

- 3.7. Protect farming and farmers from nuisance complaints in accordance with the provisions of the Right to Farm Act, Code of Virginia §3.2-301.

Actions

- A. Maintain zoning regulations and design standards that protect the right to farm.
- B. Support and provide educational programs about farming practices and activities to reduce potential conflicts associated with the proximity of agriculture to nonagricultural uses.

## Design Guidelines

The Design Guidelines are to build upon our current development patterns in a manner that allows innovative design and new responses to the market. The Design Guidelines are not meant to be prescriptive and are not intended to be treated as a checklist, but are instead meant to provide a framework for how the desired character of the RPA can be achieved, with the acknowledgement that other methods could achieve the intended results. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, or any other design standards or regulations administered by Loudoun County.

When using the guidelines make sure to analyze the impact a potential development may have on the landscape, considering not only appearance, but practical considerations such as proximity to roads, utilities, and community amenities to maximize the use of existing infrastructure and limit travel distances. Development should contribute to creating unique places within the Rural Policy

Area by working with existing topography and site features, responding to the local context, preserving farmland and reinforcing the landscape's character, rather than simply attempting to place suburban design onto the rural landscape. Sustainability requires maximum consideration for using the landscape for benefits such as solar heat gain or shelter from wind when siting buildings. It is imperative that buildings and structures are treated as objects in the rural landscape and given due attention to their location and form to ensure they blend with the topography, protect viewsheds, and contribute to the traditional pattern of development in the RPA. The County encourages the use of a design process when planning development in the RPA that conserves natural, environmental, and heritage resources and incorporates any such features into the site design (See Appendix A for Design Guidelines for RPA).

## **Place Types**

As described in the beginning of this chapter, the following Place Types have been designated for specific locations as displayed on the accompanying map. The Place Types will work in concert with the Design Guidelines and Policies, Strategies, and Actions of the RPA and Rural Historic Villages to fulfill the land use patterns and community characteristics intended for the area.

# Rural Historic Villages

## Vision

Rural Historic Villages continue to be vibrant communities that reflect historic settlement patterns that preserve and enhance Loudoun’s social and cultural heritage while contributing to the overall character of the Rural Policy Area.

## Introduction

The County recognizes the Rural Historic Villages as important features of the RPA that possess scenic and historic resources, act as gathering places for citizens, provide services to the surrounding community, and support rural tourism. The existing Rural Historic Villages were established during the 18<sup>th</sup> and 19<sup>th</sup> centuries, in areas located around historic mills, railroad depots, or major crossroads that later developed as commercial and mercantile business centers that served the surrounding farming communities.

The Rural Historic Villages have gradually developed over a number of years and feature a variety of building setbacks, types, and styles as well as streetscapes that reflect the historic growth and character of the individual villages. The Rural Historic Villages are dominated by residential dwellings with some commercial structures that have upper floor apartments and offices. Small scale, non-residential uses, such as country stores, restaurants, antique shops, and other retail establishments that meet local needs and support tourism, are located within some of the Rural Historic Villages. In addition, numerous civic uses, such as churches, post offices, community centers, fire and rescue stations, and schools, are also located within the Rural Historic Villages.

Rural Historic Villages
Aldie
Bluemont
Bowmantown
Lincoln
Loudoun Heights
Lucketts
Neersville
Paeonian Springs
Philomont
St. Louis
Taylorstown
Waterford

The County’s land development approach for the Rural Historic Villages is to limit residential, business, and commercial activities to uses that are compatible with the historic development patterns, community character, and visual identity of the individual villages. The *Loudoun County 2019 Comprehensive Plan* (Comprehensive Plan) strives to maintain the traditional development pattern and distinguishing features of the individual villages while accommodating opportunities for compact, small-scale growth where appropriate in a manner that enhances existing residential and commercial areas. By encouraging limited compact, residential and non-residential development within the Villages, these policies complement the County’s efforts to preserve open space and maintain the character of the rural area. Although limited development is anticipated in the Villages, that development should not adversely affect the quality of life of residents nor pose a threat to public health or safety. Only three of the existing Rural Historic Villages – Aldie, St.

Louis and Waterford – are currently served by public community wastewater systems. Aldie is the only village that is served by a private water company. The remainder of the properties located within the Rural Historic Villages are currently served by individual water wells, and septic sewage systems (i.e., conventional drainfields, alternative systems, etc.), which limit the potential scale and intensity of development. Additionally, a number of the Rural Historic Villages are bisected by major roadways that experience high volumes of commuter traffic and impact the quality of life of residents. With careful planning and growth management, the Rural Historic Villages will maintain their scenic and historic character.

## **Policies, Strategies, and Actions**

Unless otherwise specified, the following Policies, Strategies, and Actions apply only within the Rural Historic Villages.

**RHV Policy I: Development and uses in Rural Historic Villages must be compatible with the historic development pattern, community character, visual identity, intensity, and scale of the individual villages.**

### Strategy

- 1.1. Encourage the retention and development of a variety of compatible residential, commercial, and community uses that enhance the attractiveness and vitality of the Rural Historic Villages.

### Actions

- A. Develop criteria to evaluate existing Rural Historic Villages and other historic crossroads communities, such as Airmont, Bloomfield, Howardsville, Morrisonville, Unison, and Willisville, to determine if their current designation is warranted, define and/or redefine community boundaries as necessary, and amend the Comprehensive Plan and Zoning Ordinance as appropriate.
- B. Work with Rural Historic Villages to develop community plans that will support their community goals and address issues related to land use and zoning; economic development; natural, environmental, and historic resources; community facilities and services; water and wastewater; and transportation to maintain the character of the villages.
- C. Review and revise zoning regulations, design standards, and guidelines to achieve compatible building and street design to ensure that quality development occurs within the Rural Historic Villages.
- D. Coordinate with Rural Historic Village communities to determine appropriate methods to differentiate entrances into the villages from surrounding areas, including through street design, landscaping, and building placement.
- E. Incorporate traffic calming measures that are compatible with the village character where appropriate to reduce vehicle speeds and provide a pedestrian-friendly environment.

- F. Evaluate and revise existing Rural Commercial (RC) zoning district regulations to implement Plan policies and design standards for development in the Rural Historic Villages that ensure compatibility with the settlement patterns and neighborhood scale.

Strategy

- 1.2. Preserve the character of the villages and their historic structures and sites through the rehabilitation and adaptive reuse of existing buildings.

Actions

- A. Promote and support building maintenance and improvements to preserve the existing building stock and the character of the villages.
- B. Evaluate the establishment of additional County Historic Districts in the Rural Historic Villages.

Strategy

- 1.3. Limited increases in residential densities within the Rural Historic Villages may be considered through legislative approval processes when the design of the project reinforces the character, development pattern, and identity of the village. Conventional, suburban forms of development are not appropriate in or contiguous to Rural Historic Villages.

Action

- A. Adopt zoning regulations and design standards to encourage housing on smaller lots, allow accessory apartments attached to single-family residential units, and allow residential units above commercial/retail uses within the Rural Historic Villages to provide housing options.

Strategy

- 1.4. Business and commercial uses in the Rural Historic Villages should be 1) small scale, 2) compatible with existing development patterns, 3) generate limited vehicular traffic, and 4) meet local community needs or support rural tourism.

Action

- A. Adopt zoning regulations, design standards and performance criteria that are specific to the types of small-scale, community-related commercial uses that the County encourages within the Rural Historic Villages.

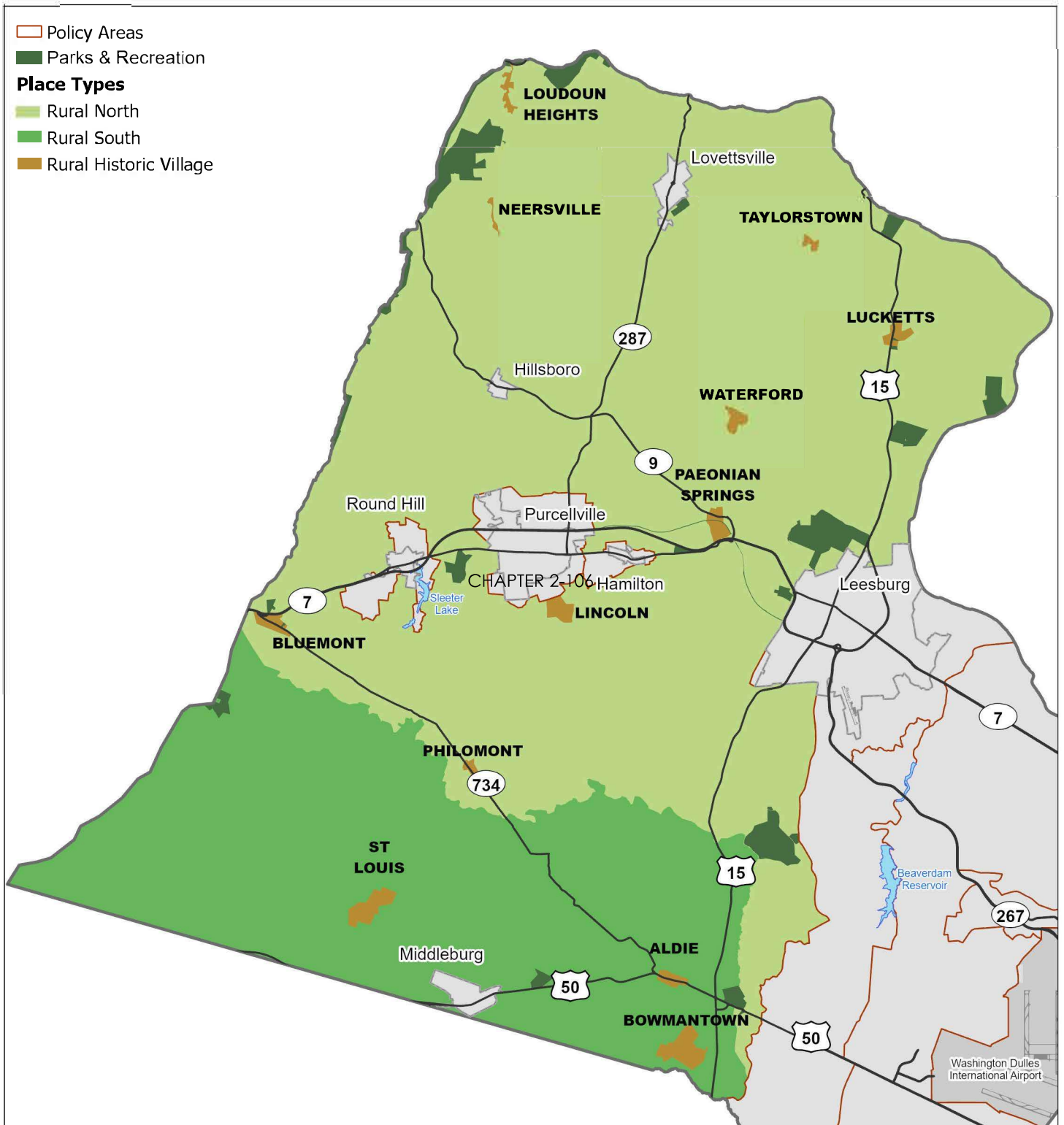
## **Design Guidelines**

The Design Guidelines are to build upon our current high quality development in a manner that allows innovative design and new responses to the market. The Design Guidelines are not meant to be prescriptive and are not intended to be treated as a checklist, but are instead meant to provide a framework for how the desired character of the Rural Historic Villages can be achieved, with the acknowledgement that other methods could achieve the intended results. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, or any other design standards or regulations administered by Loudoun County.

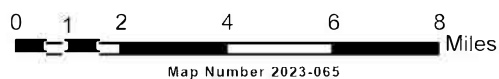
When using the guidelines make sure to analyze the impact potential development may have on the Rural Village and surrounding landscape, considering not only appearance, but practical considerations such as road and street access, siting of buildings and parking, safe and adequate water and wastewater, community amenities, jobs, and housing to assess compatibility. Development should contribute to the character of the Rural Historic Villages to integrate and blend with existing development patterns and building styles.

Many properties within the Rural Historic Villages of Aldie, Bluemont, Lincoln, Taylorstown and Waterford are located within County Historic and Cultural Conservation Districts which are zoning overlays that regulate the appearance of properties through architectural design guidelines. Any alterations, additions, demolition or relocation of an existing structure, or any new construction within the conservation districts requires approval from the County's Historic District Review Committee. The goal of the architectural review processes is to ensure the historic, architectural, and landscape characteristics that are unique to the villages are protected, preserved, and enhanced for future generations. While the remainder of the Rural Historic Villages do not have historic district zoning overlays, the County's policies also support compatible development and the retention of the unique character of the individual villages. Public water and wastewater facilities are encouraged to provide services to the villages (See Appendix A for Design Guidelines for Rural Historic Villages).





Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



# Rural North



The Rural North consists of pastoral and forested landscapes that serve mostly agricultural and agricultural supportive uses with limited residential. The area allows for complementary agricultural, rural business, and tourism uses that constitute Loudoun’s rural economy. This category also includes low-density, large-lot residential subdivisions that are compatible with the surrounding pastoral character, and subdivisions that cluster smaller residential lots while retaining large lots for open space, agricultural production and/or rural economy uses. Public utilities are not provided and wells and septic systems are traditional; however, shared community water and wastewater systems may be utilized for cluster developments and rural economy uses. Minimum lot sizes vary according to land use and the development option chosen. All developments should incorporate natural and heritage resources while preserving important viewsheds that contribute to the rural landscape.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Agriculture</li> <li>• Agricultural Supportive Businesses</li> <li>• Equine Facilities</li> <li>• Rural Economy</li> </ul>	<ul style="list-style-type: none"> <li>• Large Lot Residential</li> <li>• Clustered Residential Subdivision</li> <li>• Accessory Residential Units</li> <li>• Agritourism</li> <li>• Rural/Heritage Tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Public Facilities</li> <li>• Civic, Cultural &amp; Community</li> <li>• Institutional</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

## DESIGN CHARACTERISTICS

### Context

Large areas of land preserved for open space, agriculture, and rural economy uses to retain the rural character of the area with limited low-density residential and clustered residential development that blends with and is compatible with the surrounding area.

<p><b>Street Pattern:</b> Contour Forming, Fragmented Parallel</p> <p><b>Block Length:</b> Irregular</p> <p><b>Building Setback:</b> Varies (incorporate existing natural features to protect viewsheds)</p> <p><b>Parking:</b> Surface lot, driveway, garage, shared</p> <p><b>Open Space:</b> Recreation (Passive), Natural, Environmental and Heritage, and/or Agriculture 70% of site for clustered subdivisions</p>
--

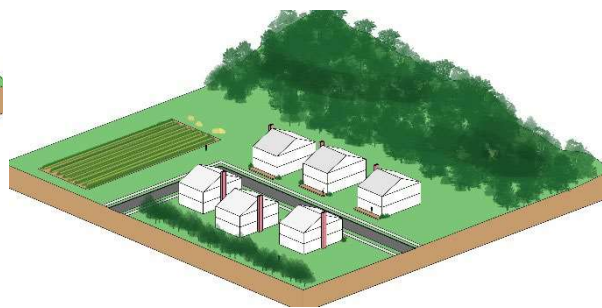
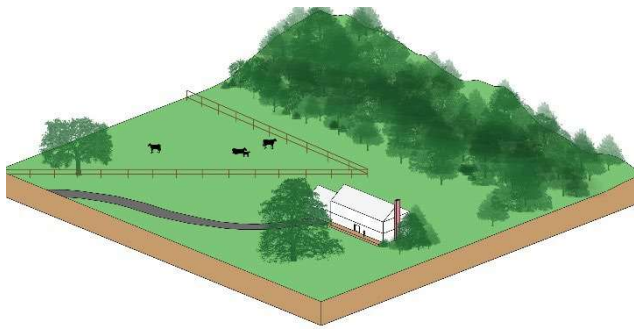
### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: Up to 1 du / 20 acres**

**Residential Cluster Option: Up to 1 du / 5 acres equivalent**

**Building Height: Up to 2 stories**



### Transition

Locate buildings and structures to blend with the existing topography and natural features. Preserve and incorporate existing trees and vegetation on the property and its perimeter to buffer and screen views for adjoining properties. Provide landscaping or supplemental plantings comprised of native species when screening and buffering are required between rural uses.

# Rural South



The Rural South contains mostly agricultural and equine uses and allows for complementary rural economy uses. This Place Type includes very low-density residential with homes located on large lots that are compatible with the surrounding pastoral character and clustered subdivisions that group smaller residential lots while retaining large lots for open space, agricultural production, and/or rural economy uses. Public utilities are not provided and wells and septic systems are traditional; however, shared community water and wastewater systems may be utilized for cluster developments and rural economy uses. Minimum lot sizes vary according to land use and the development option chosen. All developments should maintain the distinctive rural character through the incorporation of natural and heritage resources and the preservation of important viewsheds.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Agriculture</li> <li>• Agricultural Supportive Businesses</li> <li>• Equine Facilities</li> <li>• Rural Economy</li> </ul>	<ul style="list-style-type: none"> <li>• Large Lot Residential</li> <li>• Clustered Residential Subdivision</li> <li>• Agritourism</li> <li>• Rural/Heritage Tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Accessory Residential Units</li> <li>• Public Facilities</li> <li>• Civic, Cultural &amp; Community</li> <li>• Institutional</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

## DESIGN CHARACTERISTICS

### Context

Large areas of land preserved for open space, agriculture, and rural economy uses to retain the rural character of the area with limited low density residential and clustered residential development that blends with and is compatible with the surrounding area.

<p><b>Street Pattern:</b> Contour Forming, Fragmented Parallel</p> <p><b>Block Length:</b> Irregular</p> <p><b>Building Setback:</b> Varies (incorporate existing natural features to protect viewsheds)</p> <p><b>Parking:</b> Surface, driveway, garage, shared</p> <p><b>Open Space:</b> Recreation (Passive), Natural, Environmental and Heritage, and/or Agriculture 70% of site for clustered subdivisions</p>
--

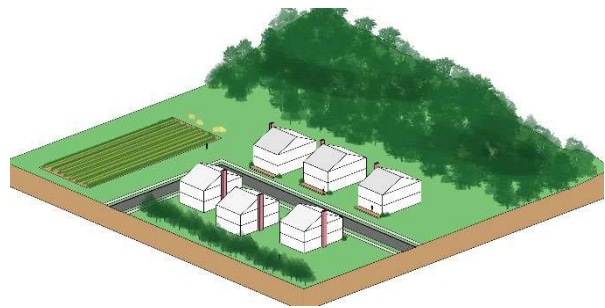
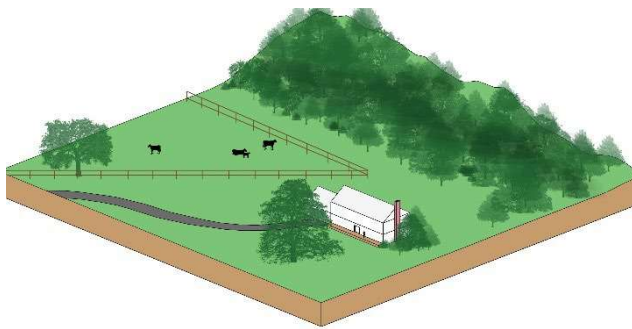
### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: Up to 1 du / 40 acres**

**Residential Cluster Option: Up to 1 du / 15 acres equivalent**

**Building Height: Up to 2 stories**



### Transition

Locate buildings and structures to blend with the existing topography and natural features. Preserve and incorporate existing trees and vegetation on the property and its perimeter to buffer and screen views for adjoining properties. Provide landscaping or supplemental plantings comprised of native species when screening and buffering are required between rural uses.

## Rural Historic Villages



Rural Historic Villages consist of small, pedestrian-scale rural communities that are compact in comparison to the surrounding agricultural landscape. The majority of these villages have developed around a small residential and/or commercial core that provide for the daily needs of village residents, surrounding rural residents, and visitors. Rural Historic Villages are characterized by low-density residential development situated on smaller lots interspersed with limited commercial uses. Residential and commercial uses are generally located in detached stand-alone two-story buildings which are located close to the street. In some instances office or residential uses are located above first floor retail. Each Rural Historic Village has its own unique character linked to its historic development pattern, spatial organization, and location within the County.

Spacing of buildings—both commercial and residential—should respect each village’s historic precedents for lot size, building setbacks, and orientation to the street. Buildings should be designed to be sensitive to the context of the village through compatible siting, size, scale, massing, materials, design details, and roof forms.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Single Family Detached Residential</li> <li>• Retail &amp; Service Commercial</li> </ul>	<ul style="list-style-type: none"> <li>• Office</li> <li>• Live/work units</li> <li>• Civic, Cultural, &amp; Community</li> <li>• Rural/Heritage Tourism</li> <li>• Rural Economy</li> <li>• Agricultural Supportive Businesses</li> </ul>	<ul style="list-style-type: none"> <li>• Accessory Residential Units</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

## DESIGN CHARACTERISTICS

### Context

Small-scale and often historic buildings sited in a compact pattern that contain residential or commercial uses that may also be vertically mixed. Each Rural Historic Village has a unique character and sense of place that should be preserved and enhanced.

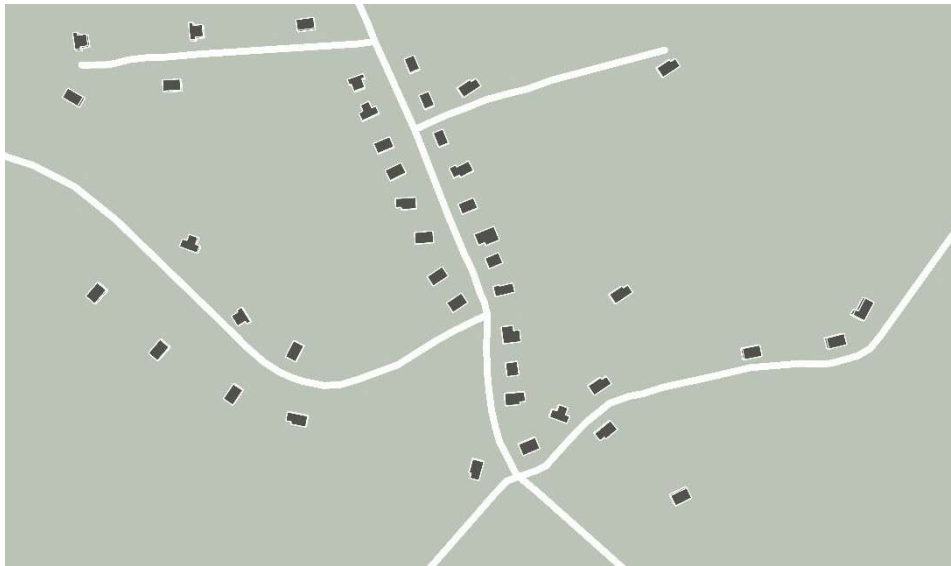
**Street Pattern:**  
Contour Forming, Fragmented Parallel,  
Irregular

**Block Length:**  
Varies by Village

**Building Setback:**  
Shallow

**Parking:**  
On-street, driveway, garage

**Open Space:**  
Recreation (Passive), Community, Natural, Environmental  
and Heritage, and/or Agriculture



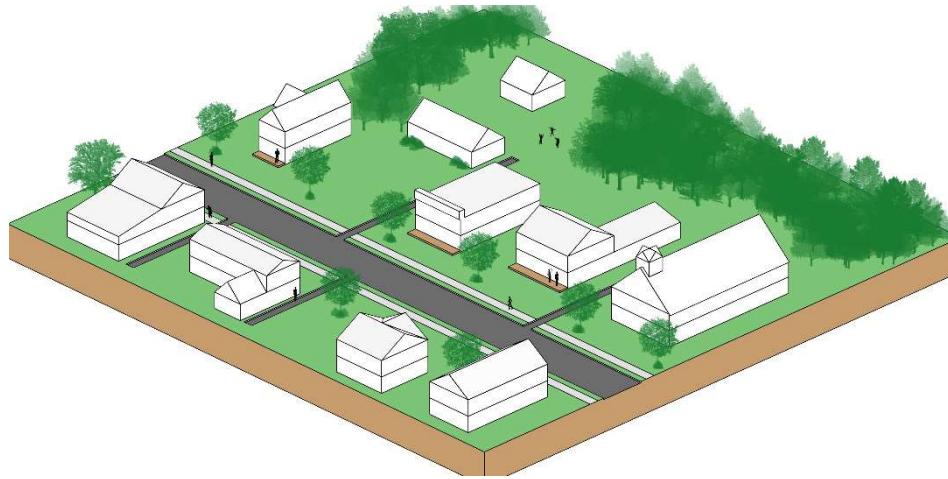
*An example plan view of a Rural Historic Village*

### **Place Type Rendering**

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: Varies by individual village; no more than 4 du / acre**

**Building Height: Up to 2 stories**



### **Transition**

Maintain areas of open space and natural areas on the perimeter of the villages to maintain a hard edge and visual separation from surrounding uses. Within the village, preserve existing trees and vegetation, which define building lots and contribute to the streetscape. New construction should be designed to complement surrounding properties and maintain the existing development pattern within the Village.



# Towns and JLMAs

## Vision

The Towns will continue to be hubs of economic and cultural activity in western Loudoun.

## Introduction

In 2016, approximately 62,000 Loudoun residents lived in Loudoun’s incorporated Towns (see Table 1). The seven incorporated Towns offer a window to the County’s past and are a key component of Loudoun’s unique character today. All have existed as independent incorporated entities for more than a century, first as agricultural business centers providing markets for farm products, and supplying the necessary goods and services for rural residents. They were also distribution points linked by railroad to markets to the east. While still influenced by their agricultural tradition, the Towns play a larger economic and cultural role that includes retail and service-based businesses, educational opportunities, medical centers, and industrial centers. Remnants of the W&OD Railroad line have become an important regional shared-use trail link still tying the Towns to each other and communities to the east.

**Table 1. Housing and Population Estimates**

Town	Population	Housing Units	Approximate Town Area (acres)	Approximate JLMA Area (acres)
Hamilton	448	193	135	630
Hillsboro	98	44	170	NA
Leesburg	49,401	17,202	8,000	4,300
Lovettsville	2,096	694	570	NA
Middleburg	656	429	680	NA
Purcellville	8,914	2,725	2,200	2,200
Round Hill	570	222	240	1,450
<b>Totals</b>	<b>62,183</b>	<b>21,509</b>	<b>12,000</b>	<b>8,580</b>
<b>Loudoun County</b>	<b>362,435</b>	<b>122,490</b>	<b>333,558</b>	<b>17,160</b>

Source: 2016 American Community Survey

## Development Approach

The *Loudoun County 2019 Comprehensive Plan* recognizes the cultural and economic importance of these individual towns maintaining their historic character. The Plan continues the Joint Land Management Area (JLMA) concept, in place since 1991, which intends to accommodate the outward expansion of the Towns, permitting moderate growth at densities and designs suitable to the Towns until the Towns choose to annex property. However, implementation of the JLMA policies has not created development patterns that reflect the historic character of the Towns. The *Loudoun County 2019 Comprehensive Plan* recommends future action to review and modify the JLMA concept. The *Loudoun County 2019 Comprehensive Plan* also recognizes that, where

possible, the remaining defining edge distinguishing the towns and the JLMA from the rural area be maintained and enhanced with an effort to create “gateway” corridors leading to each town. The JLMA zoning regulations offer a range of densities, design guidelines, and utility requirements. Leesburg, Round Hill, Purcellville, and Hamilton have seen extensive development in their respective JLMAs, while Lovettsville, Middleburg, and Hillsboro have over time chosen not to have JLMAs because of utility constraints, concerns about growth, or a desire to concentrate inside their existing limits. Leesburg’s JLMA has a distinct suburban pattern with predominantly residential development north of Route 7 and business and employment uses south of Route 7.

## **Policies, Strategies, and Actions**

**Town Policy I: Collaborate with the Towns on matters of common interest to preserve the identity of each Town and their role as economic and social centers. The County recognizes that the Towns may be impacted by proposed development near their borders and will consider, as appropriate, Town comments on development near their borders.**

### Strategy

- 1.1 Work with the Towns to develop and implement a shared vision for the Towns and their surrounding areas and gateways.

### Actions

- A. Continue to refer to jointly approved area management plans and refer to applicable Town policies on matters within the JLMA.
- B. Establish a regular coordination program with Towns to anticipate, monitor, and address development and planning matters.
- C. Undertake joint planning efforts in the JLMA.
- D. Participate as a partner with the Towns in their negotiations with VDOT and other agencies for road maintenance, safety improvements, and traffic calming, particularly along Routes 15, 50, 7, 9, and 287 in proximity to the Towns, and other changes in roads and/or transportation services that are consistent with both the Town’s and the County’s goals and priorities.
- E. Assess the effectiveness of the JLMA approach and associated zoning in protecting town character, maintaining a defining edge between the town and the rural areas, and/or as a tool for expanding economic development objectives. The defining edge is the boundary between two distinct land use patterns, whether existing or desired. The edge may encompass an area that establishes a visual distinction, either as perceived from the road or from broader views of the landscape.
- F. Add provisions to the rural and JLMA zoning districts specific to gateway corridors leading into each town that would establish deeper building setbacks variable building and lot configuration and orientation, hedgerow landscaping and buffering along the road, and other measures that retain or create a traditional rural or natural appearance

leading into the town.

- G. Work with the Towns, interested groups and nonprofit foundations to identify open-space and agricultural-preservation strategies such as: donation of conservation easements, fee-simple purchase, clustering, and the possible creation of a conservation service district.

### Strategy

- 1.2 Encourage new development to locate within the Towns before moving into the JLMAs or surrounding area.

### Actions

- A. Encourage the maintenance, improvement, or adaptive reuse of existing building stock in a manner that supports social and economic diversity within the community.
- B. Promote the commercial areas within the Towns as the preferred location of retail and service businesses, office development, and public and civic uses, as deemed appropriate by the Towns.
- C. Work with the Towns to enhance their economic base and maintain viable commercial areas through marketing, capital investments, and business attraction.
- D. Support annexations by the Towns when water and sewer extend into a JLMA in accordance with the annexation guidelines in this section and to resolve jurisdictional questions for property owners.
- E. Encourage site layouts in a JLMA that extend the existing and planned development patterns of the Town and surrounding JLMA.

### Strategy

- 1.3 Continue to recognize the Towns as the preferred location of public facilities serving the Rural Policy Area, when otherwise consistent with Town policies and when suitable land and services are available.

### Actions

- A. Encourage the continued use of existing public facilities located in the Towns and JLMAs and seek to maintain existing community-based schools as an important social and economic component of the communities.
- B. Cooperate with the Towns providing local law enforcement to ensure a coordinated enforcement strategy within the Town JLMAs.
- C. Support development of sidewalks and recreational, multi-use, and equine trails connecting the Towns to each other, to regional trail networks such as the W&OD and C&O Canal, and to area destinations.

## Leesburg

Leesburg, the largest and most populous of the incorporated towns with a population of approximately 49,000 residents<sup>1</sup>, has the added distinction of serving as the seat of the County government. By its location, it functions and appears to be a commercial hub at the junction between suburban areas to the east and rural areas to the west. The pressures for growth in Leesburg are the result of the robust regional economy that will continue to draw more businesses, government jobs, and residents. Town character is of paramount importance to Leesburg. The Old and Historic District is the basis of Leesburg's identity. It is a compact, mix of land uses; its blocks and buildings are human scaled; a resurgence in entertainment retail uses and downtown residential development have brought new development interest to the community. Other portions of the Town have a different, more suburban character where more uniform uses and large lots, curved streets, and culs-de-sac dominate the landscape. Between 2001 and 2016, Leesburg added 5.5 million square feet of retail, commercial, office, and institutional development, and approximately 4,300 residential units.

The Town's planning vision for the foreseeable future is to continue the diversity in economic and housing opportunities in a manner that reflects the best and essential qualities of the old and historic downtown. Leesburg will maintain a high quality of life by providing a full range of community facilities and services and diverse economic opportunities, protecting natural, environmental, and heritage resources, and protecting against negative environmental impacts. The Town of Leesburg is approximately 90 percent built out and, like other towns, has limited land area for new government facility development. County strategies recognize the fiscal impact of public facilities on a Town with limited land resources and has added more flexibility to locating such facilities in and around towns.

Leesburg's JLMA is situated almost entirely to the south and east of the corporate limits and contains approximately 7,000 acres. The northeast portion of Leesburg's JLMA has developed in the manner recommended by Town and County plans with a distinct suburban residential pattern, while other areas of the JLMA are planned for non-residential uses.

The Town views the main purpose of JLMA land uses between Route 7 and Route 267 to serve as an expansion of economic development goals by focusing on employment uses. JLMA planned place types reflect Leesburg's Town Plan and no major changes to land use are proposed.

On the south, west, and north sides of Leesburg there is no JLMA; instead, policies support a greenbelt and a defining edge adjacent to the Town. The *Loudoun County 2019 Comprehensive Plan* implements the greenbelt through rural and transitional place types up to these Town boundaries and proposing specific development guidelines along the major roads leading to the Town to preserve distinctly rural development pattern.

---

<sup>1</sup> 2012-2016 American Community Survey 5-Year Estimates.

Strategy

- 1.4 Ensure development within the Joint Land Management Area complies with the *Loudoun County 2019 Comprehensive Plan* and the Leesburg Town Plan, as amended.

Actions

- A. Collaborate with the Town of Leesburg on locating new facilities in the Town or JLMA.
- B. Maintain the planned land use of the JLMA consistent with Town of Leesburg land use policies; maintaining an emphasis on employment uses south of Route 7 and residential to the north of Route 7.
- C. Prohibit power generation plants in the Leesburg JLMA.
- D. Define the Town of Leesburg and JLMA as a distinct community separate from the Suburban and Rural Policy Areas by retaining rural policies and zoning to the north and south of the Town boundary and west of Evergreen Mills Road, and protecting the Goose Creek and Sycolin Creek floodplains to the east and south of the JLMA.
- E. Preserve the rural character of the viewsheds along Route 15 as it approaches the Town of Leesburg from the north and south by encouraging additional conservation easements and instituting design guidelines.
- F. Cooperate with the Town of Leesburg to complete the Potomac Heritage Trail and conserve open space along the Potomac River within the Town boundary and JLMA area.
- G. Coordinate with the Town of Leesburg and VDOT on the feasibility of planning and building Edwards Ferry Road as a two-lane facility with on-road bicycle accommodations. The County will work with the Town and VDOT to designate the road as a scenic by-way.
- H. Protect the viability of the Leesburg Airport by ensuring development in the JLMA does not impede Airport operations by continuing to prohibit residential development inside the 65 Ldn noise contour.

**Hamilton**

First settled in the 1730s and incorporated in 1875, the Town of Hamilton is located along business Route 7 between Leesburg and Purcellville. Hamilton served as a commercial and tourism hub after the railroad was extended west of Leesburg, though by the mid-1900s had become primarily a residential community. The existing JLMA around Hamilton and the adjacent RPA along the north side of its boundaries have also developed with residential uses. While Hamilton has extended utilities outside of its boundaries and has water facilities in the JLMA, it does not foresee expansion of the JLMA. An existing school and school support facilities on the western edge of the JLMA serve to separate the community from Purcellville.

The Town of Hamilton Comprehensive Plan for the Town of Hamilton and JLMA serves as Loudoun County's planning document for the Hamilton JLMA. The Comprehensive Plan for the

Town and JLMA was jointly adopted by Loudoun County and the Town of Hamilton and planned for a period through 2020. The Policies, Strategies, and Actions specific to Hamilton address the continued coordination between the Town and County regarding future updates to Hamilton's Comprehensive Plan.

The Town of Hamilton supports the Town's ability to annex land within its JLMA. The Town believes such annexations provide "win-win" scenarios that enable the Town to provide better and additional services to property owners, while the County still receives applicable tax revenue from these areas.

The Town of Hamilton also supports collaboration between Loudoun County and the Town regarding development issues near the Town, especially to the west and east along Business Route 7/Colonial Highway.

Hamilton's wells are vital to the continued provision of potable water to County and Town residents. As such, Hamilton supports Policies, Strategies, and Actions regarding the location and depth of private wells to protect municipal wells that provide water to thousands of people throughout Loudoun County.

The Town of Hamilton supports an emphasis on affordable housing and supports increased efforts to provide housing that is affordable to the workforce, seniors, teachers, firefighters, police, and others who allow Loudoun County to function as a community.

### Strategy

- 1.5 Development within the Hamilton JLMA will comply with the comprehensive plan for the Town of Hamilton and the adjacent area in the JLMA.

### Actions

- A. Maintain the Town of Hamilton authority over subdivision applications within 1 mile of its corporate limits.
- B. Work with the Town of Hamilton to update the Comprehensive Plan for the Town and JLMA after the adoption of the *Loudoun County 2019 Comprehensive Plan*.
- C. Support the Town of Hamilton efforts to develop an identifiable town center to serve as a community focal point for the Town of Hamilton and the JLMA.
- D. Seek to improve street connectivity as the redevelopment and infill development occur in the JLMA and connect to the existing streets in the Town of Hamilton, where feasible, with roads that are compatible with traditional town designs.
- E. Work with the Town of Hamilton to effectively manage transportation systems around the Town and to explore methods of traffic calming on Business Route 7 through town including the possible use of a traffic circle at Route 7 and St. Paul Street.
- F. Maintain a distinct identity for the greater Hamilton community separate from the adjacent rural areas by establishing a greenbelt around the Town of Hamilton and the JLMA using conservation easements, passive and active parks and other means.
- G. Work with the Town of Hamilton to achieve a balanced land use pattern that will retain

Hamilton’s historic small-town character in a rural setting and maintain its unique sense of place.

- H. Work with the Town of Hamilton to plan for a shared-use trail connecting to the Town of Purcellville.

## Hillsboro

Established in 1752 in the narrow gap of the Short Hill Mountains and known simply as “The Gap” until incorporated as Hillsborough in 1802, today’s Town of Hillsboro is among the best-preserved 18th/19th-century rural villages in the Commonwealth. Although a 2016 boundary line adjustment nearly doubled the Town’s area, with a population of approximately 100 residents<sup>2</sup>, Hillsboro remains the fourth smallest town in Virginia.

First placed on the National Register of Historic Places in 1977, the Hillsboro Historic District was expanded in 2010 to encompass 152 acres with 52 contributing structures dating primarily from the 18th and mid-19th centuries. The compact linear village is bounded on its south by Catoctin Creek and South Short Hill, and the North Short Hill on the north, and is bisected by Historic Charles Town Pike (Va. Route 9), which has become a major commuter route connecting Northern Virginia to West Virginia and Maryland and carrying more than 17,000 vehicle trips daily.

Hillsboro successfully supported a traffic-calming and congestion mitigation project with the intent to reduce delays during peak hours, control speeds via dual roundabouts and traffic-calming features, and create a safe pedestrian/multi-modal environment with the addition of sidewalks, raised crosswalks, and a series of multi-modal trails. Utilizing context-sensitive materials, streetscaping, and burial of overhead utilities, this project preserves Hillsboro’s historic character and enhances its sense of place. With safe parking and pedestrian access allowing appropriate small-scale enterprises, Hillsboro looks to regain its historical role as the hub of a robust agricultural region, which has also become a major tourist destination with an expanding array of vineyards, breweries, and recreational activities – including Virginia’s newest state park.

In addition to Hillsboro’s traffic-calming project, the complete overhaul of the Town’s drinking water system and installation of a low-pressure sanitary sewer force main, in anticipation of a community wastewater treatment facility, will serve the community for years to come.

With its transformative infrastructure projects, Hillsboro’s Comprehensive Plan and Zoning Ordinance will be updated to better reflect the potential for appropriate economic development within the existing built environment that is consistent and complementary to historic preservation and provides a broader tax base to ensure long-term viability. The Town will continue the repurposing of its landmarks, Old Stone School and Gap Stage, into a regional venue for the arts in addition to serving as Hillsboro’s Town Hall and community/visitor center.

As the traditional “home town” for a nearly 50-square mile rural region in Northwest Loudoun, the Town of Hillsboro has taken a leadership role in unifying and “branding” the area. The Town supported and facilitated the conversion of the Hillsboro Elementary School into Loudoun’s second public charter school in 2016, led a successful effort in 2017 to reestablish an official

<sup>2</sup> 2012-2016 American Community Survey 5-Year Estimates.

Hillsboro postal identity for this area, and fostered the creation of the Greater Hillsboro Business Alliance.

With more than a dozen vineyards, numerous specialty farm operations and Loudoun’s greatest concentration of bed and breakfasts within five minutes of the Town’s center, Hillsboro is the gateway to one of Virginia’s most dynamic rural economies. As such, the Town has an existential stake in the preservation of the farmlands and open spaces, mountainside forests and ridge lines that surround it. Hillsboro’s historic integrity as a rural village situated on the 18th-century “Great Road” – Charles Town Pike – is largely defined by the still existent swaths of farmlands on its east and west approaches. As Hillsboro’s National Register of Historic Places nomination describes: “The majority of the buildings in Hillsboro are nestled along Charles Town Pike. The nominal setback of these buildings contributes to Hillsboro’s sense of time and place, as the uniformity and integrity of the building stock has been maintained.... The buildings share a commonality in their setback, maintaining Hillsboro’s integrity of location and feeling. The rural character of Hillsboro is further increased by the size of the outlying properties.”

Hillsboro’s uniquely unspoiled rural and historic character – despite its location within one of the nation’s most economically dynamic, fastest-growing and wealthiest counties – makes the Town and its environs assets that will only become more valuable with the urbanization of eastern Loudoun. Proactive preservation of farmland in the RPA through private permanent conservation easements is essential.

The renaissance that Hillsboro is currently experiencing will serve as a catalyst to ensuring the long-term viability of a strong recreational/agritourism economy in Northwest Loudoun. In partnership with Loudoun County, the Town is committed to forging policies that protect and preserve the vital rural assets that contribute to economic vitality and quality of life for all Loudoun residents.

### Strategy

- 1.6 Enhance the role of Hillsboro as a rural gateway and hub for northwest Loudoun’s agricultural, recreational, and wine tourism area.

### Actions

- A. Encourage the establishment of a greenbelt around the Town using conservation easements, development design techniques and other means to help maintain the distinct edge and rural community identity of the Town of Hillsboro.
- B. Support the development of entry features into the town, to enhance the identity of the Town of Hillsboro as a gateway community.
- C. In recognition of Hillsboro’s historic role and future development as the center of a robust agricultural region, support expanded productive farming and rural economic development that will encourage new farmers, preserve and expand area farmland, boost tourism, stimulate county and regional markets for locally produced products and jobs, and expand entrepreneurial opportunities to Hillsboro area residents.



- D. Encourage the preservation of the natural, environmental, and heritage resources that contribute to the identity of Hillsboro.
- E. Oppose any increase in density and development outside of the Town of Hillsboro that does not retain the low density, farm landscape that provides the historic rural context for the Town.
- F. Work with the Town of Hillsboro and with VDOT to establish context-sensitive roadway design standards and to identify short and long-term solutions for improving the safety of Route 9 in western Loudoun and through Hillsboro that do not compromise the rural character of Hillsboro.
- G. Promote safety measures for pedestrians, cyclists, and farm vehicles along and across Route 9, Route 690, Route 719, and Route 812.
- H. Work with the Town of Hillsboro to establish a safe and adequate water supply and modern community wastewater collection and treatment system.

## Lovettsville

Lovettsville, originally known as the German Settlement, is a small town with historical roots that go back to 1732. The Town served as a thriving commercial center for the surrounding farming areas for over one-hundred years. This function was eventually eclipsed during the post-World War II period by other, larger communities in Loudoun County, Northern Virginia, and nearby Maryland, which is about three miles from the Town.

Since 2005, Lovettsville has experienced a rapid increase in population and housing associated with growth of single-family detached residences. The population influx consists of people who are attracted to the traditional main street character of Lovettsville set in the larger context of the (mostly) rural northern Loudoun Valley.

Lovettsville continues to focus on development inside its existing boundaries and prefers a distinct edge between its boundaries and the surrounding rural landscape. Lovettsville has made significant investments in streetscape improvements and trails. Commercial development has also occurred at the Town Center and along East Broad Way (Route 673). Lovettsville supports continued County cooperation on transportation and public facilities, with a strong interest in developing multi-use County trails that connect the town to the W&OD and C&O Canal trails.

Significant land use changes have occurred within the Town. Most notably the evolution of the Lovettsville Town Center from its initial concepts to a nearly-completed, neo-traditional community centered on a pedestrian-friendly and centrally-located business district having wide sidewalks, decorative streetlamps, and ample public gathering spaces. This development, residential subdivisions on infill properties, redevelopment of properties in the “Old Town” for modern commercial uses, and implementation of streetscape projects throughout, has contributed to Lovettsville’s growth from a population of 853 in the year 2000 to approximately 2,300 residents

in 2018<sup>3</sup>. Several large properties within the Town limits are available for future development, although much less land is available for new residential development compared to 18 years ago.

The County has not established a JLMA around Lovettsville, consistent with the Town's desire to focus development inside the existing boundaries. The Town has identified several limited areas outside of its corporate limits that may be candidates for annexation for the purposes of supporting existing and developing future civic, commercial, or employment uses, and achieving the Town's economic development goals. Future annexation of these areas will be considered on a case-by-case basis and is dependent on the capacity of Town water and wastewater services to accommodate the future development of these properties, something that the Town evaluates through its Water and Sewer Master Plan.

The County is actively improving and constructing public facilities in and around the Town including the Lovettsville Community Center, Lovettsville Community Park, Lovettsville Volunteer Fire and Rescue Station, and Lovettsville Elementary School. Coordination is critical to providing utilities and access to these facilities and to planned future development, which may require access through the County to afford multiple points of connection to and from public streets. The Town also seeks continued County funding for streetscape enhancements and for pedestrian safety improvements and traffic calming on Town streets near County facilities.

#### Strategy

- 1.7 Support the Town of Lovettsville in efforts to consolidate development within its boundaries.

#### Actions

- A. Retain and recruit businesses that serve the needs of Lovettsville and northern Loudoun County residents and align with Town plans.
- B. Collaborate with the Town of Lovettsville in the planning and regulation of development along Route 287 north and south of Lovettsville to protect the scenic quality and the rural character of the road as it approaches the Town.
- C. Link the County's greenways and trails system with the Town of Lovettsville's internal trail and bikeways network to link Lovettsville with the C&O Canal in Brunswick, Maryland, and the W&OD bike path in Purcellville.
- D. Plan the location and design of County facilities within Lovettsville, in consultation with the Town of Lovettsville.
- E. Collaborate with the Town of Lovettsville and VDOT on transportation planning in and around Lovettsville to improve traffic safety in the Town of Lovettsville and to improve regional road networks and access to employment centers.
- F. Cooperate with the Town of Lovettsville, pursuant to County/Town Annexation Agreement/Corporate Boundary Line Adjustment Guidelines on boundary-line

---

<sup>3</sup> Annual Estimates of the Residential Population, United States Census Bureau.

adjustments to resolve jurisdictional questions, to serve public and civic uses, and to support the Town of Lovettsville's economic goals and priorities.

## **Middleburg**

The Town of Middleburg, established in 1787, is the southernmost town in Loudoun County and retains a traditional village character that is treasured by its citizens and visitors. Middleburg is both the hub of a larger rural area and a major tourist destination. The character of Middleburg is irrevocably tied to the preservation of the farms, vistas, vineyards, open spaces, and forests that surround the Town, with equestrian facilities, estates, wineries, and associated businesses central to Middleburg's way of life and tourism industry.

The commercial core of Middleburg contains both retail and service businesses that serve rural area residents and the tourism industry. Specialty and high-end accommodations and retail, food, and beverage are cornerstones of the Town's economy. The rural nature and character of its surroundings are critical to its continued success. Visitor dollars spent at restaurants, shops, and accommodations within Middleburg generate 75 percent of annual Town revenues.

The Town is home to 656 people and expects its population to increase modestly in the future. A significant portion of the Town has been placed on the National Register for Historic Places and the Town administers a local Historic District to carefully control the look and feel of new development. While undeveloped land is scarce within the Town limits, the Salamander Resort has plans for 109 new residential units, and a limited number of other infill and redevelopment opportunities exist.

To preserve the character of the Town and the rural area that surrounds it, Middleburg promotes a defining edge between in-town development and open and agricultural lands outside of town. The defining edge will be established by the uses and development pattern of the Rural South Place Type and by identifying the lands adjacent to the Town as priority open space areas for conservation easements. For this reason, a JLMA is not proposed and the public utilities will not be extended beyond the Town limits except as supported by the Town and consistent with the Sewer and Water policies of this section. A high priority for the community is to safeguard the protection of its historic character and to ensure the viability of its local and tourism economies. Town citizens and surrounding property owners are extremely concerned about the rate of growth in the County and want to protect the open space around the Town from rural residential and commercial encroachment through land use regulation and conservation programs.

Middleburg is bisected by U.S. Route 50, one of two major east-west routes through the County. The community remains concerned about the volume and speed of traffic on this route, which serves as the Town's main commercial street within the corporate limits. Even with the success of a traffic calming project completed in late 2016, traffic congestion and safety issues remain high priorities and require the County and Town to work together to identify and implement additional traffic demand reduction and traffic calming measures aimed at mitigating local and pass-through traffic in the Town.

Cooperation and regular collaboration should continue between the County and Middleburg to address issues important to both jurisdictions, including issues of economy, rural preservation, and transportation.

### Strategy

- 1.8 Maintain a defining edge at the Town of Middleburg’s boundary in lieu of a JLMA to clearly distinguish the Town of Middleburg from the surrounding rural, undeveloped countryside.

### Actions

- A. Collaborate with the Town of Middleburg on zoning and development activities outside the Town but in its vicinity, with the goal of preserving the rural character of its gateways and surrounding environs.
- B. Be an active partner with the Middleburg community and interested preservation groups to identify open-space and agricultural preservation approaches such as conservation easements, land acquisition, and development standards to promote and implement open-space preservation around the Town of Middleburg that helps establish a greenbelt and protect the rural appearance of roadways leading into the Town.
- C. Protect rural roads and scenic views through measures such as revised state road improvement standards; scenic easements; historic corridor overlay zoning for John Mosby Highway (Route 50), Foxcroft Road (Route 626), and the Plains Road (Route 626); and development setbacks.
- D. Assist, when requested, in the promotion of tourism, as a means of increasing public support for preservation of the scenic and historic Middleburg area.
- E. Work with the Town of Middleburg to implement strategies that will preserve and enhance agriculture as the predominant use in the RPA around Middleburg.

## **Purcellville**

Purcellville was first settled in the mid-1700’s, given its official name in 1852, and incorporated in 1908. Purcellville has seen significant growth, with its population of 7,727 in 2010 growing to over 9,700 in 2017.<sup>4</sup> Residents of Purcellville have expressed their support for maintaining the small town character of the Town as expressed by the traditional architecture of the older neighborhoods, the downtown, the repurposed farm buildings that serve as evidence of the Town’s rural past, the rural landscape, farmland, and green space that gives the community a sense of history. To maintain some of these factors requires cooperation between the Town and County to protect the rural nature of the land around the Town and to encourage continued economic development in the Town, which benefits western Loudoun residents.

Demand for housing in and around Purcellville is expected to increase. As Purcellville considers potential future growth demands, the Town’s preference is to focus on infill development within

---

<sup>4</sup> 2017 Population estimates, United States Census Bureau.

the Town limits and to protect surrounding rural landscapes. Purcellville does not anticipate extending utilities beyond the current Town boundaries. Any growth in or around Purcellville will increase the need for transportation improvements to be coordinated between the Town, County, and State, such as the Route 690 interchange and the Route 7 Bypass/Route 287 intersection.

Purcellville supports the protection of existing and the establishment of new open spaces in the JLMA along with trail connections, particularly between the W&OD Trail and Franklin Park. On the east and west sides of Purcellville the Town directly abuts the Rural Policy Area and there is no JLMA; however, the RPA provides for one dwelling unit per 10 acres. The Town supports a greenbelt extending to incorporate properties that fall within approximately one-quarter mile of the Town limits, with a defining edge” within the RPA. The Town supports preservation and protection programs within these areas.

The Town also supports implementation of gateways protecting rural view sheds at the east, west, north, and south entrances to the Town. To this end, the Town and County dissolved the Purcellville Urban Growth Area Management Plan (PUGAMP) in 2013 and adopted a rural development policy for the JLMA. The County encourages a low density, rural mix of residential and business uses around the Town that are distinguishable from the intensity and character of development in Purcellville.

#### Strategy

- 1.9 Support Town of Purcellville’s efforts to accommodate growth within the existing Town limits that will not compromise its small town charm or character and to maintain its role as a hub of economic development in western Loudoun.

#### Actions

- A. Establish a “defining edge” by implementing the uses and development pattern of the Rural North Place Type and by identifying the lands adjacent to the Town of Purcellville as priority open space areas for conservation easements.
- B. Work with the Town of Purcellville to plan for a trail extension that connects the W&OD Trail with Franklin Park.
- C. Include setbacks, height limitations, and landscaping standards along Route 7, Route 287, and the Route 7 Bypass to establish and maintain a greenbelt or defining edge around the Town of Purcellville characterized by open space and tree-lined roadways.
- D. Encourage the use of frontage roads, coordinated development plans, and other means of minimizing the number of driveways along Route 7 and Route 287 leading into Purcellville.
- E. Encourage new commercial uses to locate in the Town of Purcellville before locating in the JLMA.
- F. Encourage owners of historic projects in the JLMA to place properties into a Purcellville or County Historic District.
- G. Protect historic structures in the context of their natural settings.

- H. Work with the Town of Purcellville to expand broadband connectivity for citizens and businesses.

## Round Hill

Round Hill first became a recognized community in the mid-1800's, after the construction of the Leesburg and Snicker's Gap Turnpike, now Route 7. Incorporated in 1900, Round Hill served as a destination for those looking for a holiday from Washington, D.C., benefiting from the Washington and Old Dominion Railroad and proximity to the Shenandoah River.

The population within the Town's limits is approximately 668 residents.<sup>5</sup> Growth potential within Round Hill's boundaries is very limited with a projected buildout of only 20 additional residences. In contrast, the JLMA around Round Hill has experienced the addition of 1,200 new homes and approximately 3,000 residents over a 16-year period. Approximately 400 additional homes can be built in the JLMA. As development in the JLMA increases, Round Hill's ability to balance revenue and costs will be a significant consideration in annexing these residences into Round Hill's boundaries. The Town continues to seek commercial gateways at the east and west entrances to Town and is constrained downtown by the lack of space. Maintenance of the local roads is also a growth consideration. Maintenance is currently the responsibility of the Virginia Department of Transportation (VDOT) but would become a Town responsibility if the Town reaches a certain population through annexation.

There is a desire to expand public-use facilities and provide the community with additional amenities, such as a daycare, senior center, and community center. Round Hill also has an opportunity to become an Appalachian Trail community by taking advantage of its proximity to Bear's Den and Blackburn trail stops.

### Strategy

- 1.10 Support planning efforts to retain the small-town character of Round Hill and assist the Town of Round Hill in efforts to preserve the historic character and resources in and around the town.

### Actions

- A. Development within the Round Hill JLMA will comply with the Round Hill Area Management Plan and Round Hill Comprehensive Plan and adopted policies applicable to the JLMA.
- B. To that end new development should:
- i. Be of a density, lot pattern, street pattern, and scale which replicates existing development within the Town of Round Hill.
  - ii. Become an extension of the existing town, forming logical and natural additions to the historic fabric and enhancing the existing town as the central focal point of the entire community.
  - iii. Demonstrate that adequate water and sewer service will be available to serve the proposed development.

---

<sup>5</sup> 2017 Population Estimates, United States Census Bureau.

- iv. Support the clustering of residences as a method to obtain additional open space.
  - v. Oppose development that proposes an average density greater than it would have been without clustering unless a rezoning is also involved.
  - vi. Advocate for walkable neighborhoods in the JLMA using connected streets in a grid pattern and discourage the use of culs-de-sac.
- C. Encourage housing for the elderly that will allow residents to remain in the Town of Round Hill.
  - D. Encourage rural economy business development in the greater Round Hill Area to provide local goods, services and jobs to Town of Round Hill residents and visitors.
  - E. Oppose any increase in density and development outside of the JLMA that is not consistent with the traditional rural character of western Loudoun County.
  - F. Avoid high density development between the current boundaries of Purcellville and Round Hill and expand open space around Franklin Park to help maintain a greenbelt between communities.
  - G. Enhance the gateways to the Town of Round Hill by developing features or retaining a clear distinction between the surrounding rural area and the edge of the town. Techniques may include measures to protect existing trees, hedgerows, viewsheds, and vistas; design guidelines for lot configuration to retain the rural lot pattern; new landscaping and entrance features and other techniques.
  - H. Support development of sidewalks, trails, and linear parks that connect civic and public facilities with residential and commercial neighborhoods in the Town of Round Hill and JLMA and extend to Franklin Park and the W&OD Trail.
  - I. Coordinate transportation planning with the Town of Round Hill to ensure that traffic generated from development within the County does not adversely affect Round Hill. The County will work with the Town of Round Hill on traffic calming measures.

## **Towns and Joint Land Management Areas – Municipal Water and Sewer**

**Town Policy 2:** Town municipal systems will be given the opportunity to provide utilities to surrounding Joint Land Management Areas. An alternative municipal provider shall only be used when the Town, the County, and the Health Department agree.

### Strategy

- 2.1 Due to the proximity of central system water and wastewater systems to the Leesburg JLMA, and in order to avoid out-of-town utility rates for County residents and businesses, the central system shall be the presumed utility service provider in the Leesburg JLMA for new service put in place after adoption of the *Loudoun County 2019 Comprehensive Plan*. If the property owner is not able to come to an agreement with the

central system provider or the central system provider declines or is unable to provide utility service to the Leesburg JLMA or any portion thereof, utility service may be provided by the municipal system.

- 2.2. Except as provided in Strategy 2.1, serve all development in JLMAs by a municipal system when agreed to by the adjacent Town.

#### Actions

- A. Prior to approval of development in the JLMA beyond current zoning, require written assurance from the central system provider or the adjacent town, for a municipal system, that water and sewer will be provided.
- B. Consider potential impacts of surrounding development on Town wells during the development review process.
- C. Any future expansion of municipal (Town) sewer and water into the County JLMA will support development that is consistent with the goals and policies of the County and Town adopted plans.
- D. Retain the option to use shared or alternative sewer and water facilities to serve Town and County owned and operated public facilities upon agreement between the Town and the County.
- E. Permit the extension of municipal sewer and water into the Rural Policy Area only to serve public facilities or to address a potential public health risk. (See also, Chapter 6, Fiscal Management and Public Infrastructure, Rural Sewer and Water)

## **Design Guidelines**

The Design Guidelines are to build upon our current development patterns in a manner that allows innovative design and new responses to the market. The Design Guidelines are not meant to be prescriptive and are not intended to be treated as a checklist, but are instead meant to provide a framework for how the desired character of the JLMAs can be achieved, with the acknowledgement that other methods could achieve the intended results. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, proffers or any other design standards or regulations administered by Loudoun County.

When using these Design Guidelines, make sure to analyze the impact a potential development may have on the landscape, considering not only appearance, but practical considerations such as proximity to utilities, community amenities, jobs, and housing to maximize the use of existing infrastructure and limit travel distances.

The County encourages the use of a design process when planning development in the JLMA that conserves natural, environmental, and heritage resources and incorporates any such features into the site design. (See Appendix for Design Guidelines for the JLMAs)



## **County/Town Annexation Agreement/Corporate Boundary Line Adjustment Guidelines**

The County and the incorporated Towns will explore entering into annexation agreements to facilitate the annexations of properties that are receiving Town sewer and water services and are compatible with Town comprehensive plans. Agreements might include language based on the following recommendations:

1. Notwithstanding anything else in this Plan to the contrary, there shall be a presumption that land in the Leesburg Joint Land Management Area, which can be served by the central system, shall remain in the County and not be brought into the corporate boundaries of the Town.
2. With the exception of the Leesburg JLMA, the Town and the County should only honor requests for the extension of municipal sewer and/or water services outside the Town's corporate limits, within the designated JLMA when the beneficiaries of such service provide written acknowledgement of the right of the Town Council to annex the subject properties. If the Town should desire, this written acknowledgement may include the beneficiaries' written agreement to join with the Town in a joint annexation petition.
3. Parcels located within the designated JLMA and contiguous to the corporate boundaries of the Town, which have agreed to annexation in exchange for municipal sewer and/or water service, should be immediately annexed by the Town upon County approval of the rezoning and/or development proposal that requires municipal water and/or sewer service.
4. Parcels located within the designated JLMA, which have agreed to annexation in exchange for municipal sewer and/or water but which are not contiguous to the corporate boundaries of the Town, should enter into an agreement with the Town as follows: that annexation of these parcels should take place at such time as the subject parcels become contiguous with the corporate limits of the Town or five years from the date of County approval of the rezoning and/or land development proposal, which requires municipal water and/or sewer service, whichever comes first. In the latter case, where parcels receiving Town sewer and water remain noncontiguous to the corporate limits of the Town, any parcels lying between the corporate limits of the Town and the noncontiguous parcel which is receiving municipal sewer and water should be annexed at the end of the five-year period. However, these intervening parcels should not be required to hook into the Town sewer and/or water service unless desired by the property owner or necessary to maintain public health standards.
5. With the exception of the Leesburg JLMA, when the County approves the rezoning and/or development proposal of a property in the JLMA, which would require municipal sewer and/or water service, such approval should constitute the County's approval of annexation. At the time of such approval, the County should also provide the Town with written consent of annexation.
6. The County and Towns may proceed with annexations or with corporate boundary line adjustments, pursuant to State Code requirements, irrespective of whether the Town has a JLMA.

## **Place Types**

As described in the beginning of this chapter, the following Place Types have been designated for specific locations as displayed on the accompanying map. The Place Types will work in concert with the Design Guidelines and Policies, Strategies, and Actions of the JLMAs to fulfill the land use patterns and community characteristics intended for these areas.

## **Reference Maps**

Policy Areas (Map #2023-063)

Priority Commercial Redevelopment Areas (Map #2018-156)

Legacy Village Cores (Map #2019-148)

Urban Policy Areas Place Types (Map #2018-150)

Suburban Policy Area Place Types (Map #2023-067)

Route 28 Highway Transportation Improvement District Area (Map #2018-312)

Transition Policy Area Place Types (Map #2023-061)

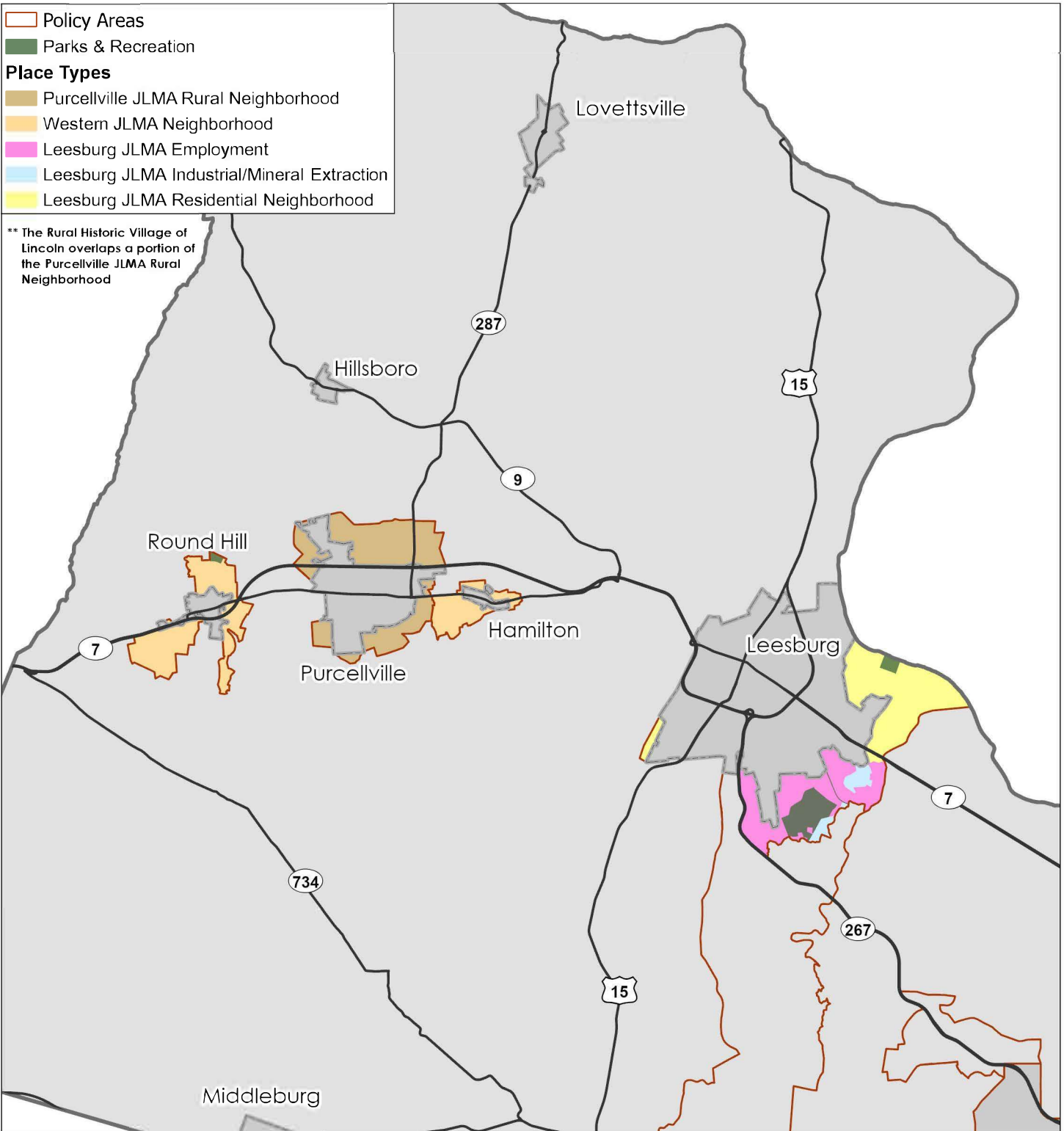
Rural Policy Area Place Types (Map #2023-065)

Conservation Easements in Rural Policy Area: 2023 (Map #2023-060)

JLMA Place Types (Map #2023-066)

# JLMA Place Types

2019 General Plan



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



## Purcellville JLMA Rural Neighborhood



The Purcellville JLMA Rural is a combination of low-density rural residential uses and limited agriculture and related businesses in a rural visual setting that is easily distinguished from the Town development pattern. Uses are predominantly residential but limited agriculture-supportive businesses that can be accommodated by onsite well and septic systems are appropriate. Municipal water and sewer service is not anticipated except to address potential health threats, but shared water and wastewater systems are permitted for public facilities.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Large Lot Residential</li> <li>• Agriculture</li> <li>• Agricultural Supportive Businesses</li> <li>• Equine Facilities</li> <li>• Rural Economy</li> </ul>	<ul style="list-style-type: none"> <li>• Clustered Residential Subdivision</li> <li>• Accessory Residential Units</li> <li>• Agritourism</li> <li>• Rural/Heritage Tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Public Facilities</li> <li>• Civic, Cultural &amp; Community</li> <li>• Institutional</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

## DESIGN CHARACTERISTICS

### Context

Large areas of land preserved for open space, agriculture, and rural economy uses to retain the rural character of the area leading to the Town with limited low-density residential and clustered residential development screened from the roads to maintain the distinct identity of the Town.

**Street Pattern:**

Contour Forming, Fragmented Parallel

**Block Length:**

Irregular (0.5-5 mile)

**Building Setback:**

Varies (incorporate existing natural features to protect viewsheds)

**Parking:**

Surface lot, driveway, and garage

**Open Space:**

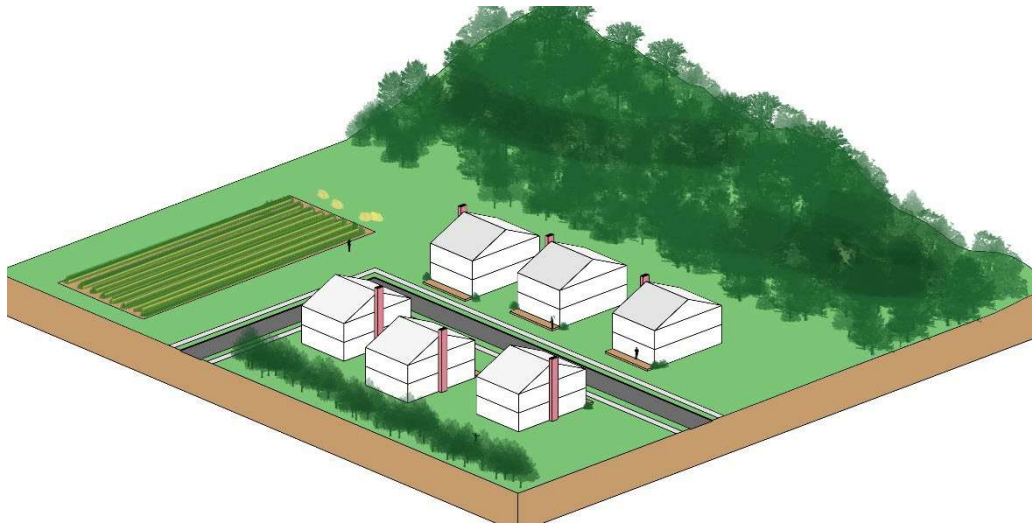
30-50% of site-Recreation (Passive), Natural, Environmental and Heritage, and/or Agriculture

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: 0.3 – 2.0 du / acre**

**Building Height: 1-3 stories**



### Transition

Locate buildings and structures to blend with the existing topography and natural features. Preserve and incorporate existing trees and vegetation on the property and its perimeter to buffer and screen views for adjoining properties. Provide landscaping or supplemental plantings comprised of native species when screening and buffering are required between uses.

## Western JLMA Neighborhood



The Western JLMA Neighborhood applies to areas around the towns of Round Hill and Hamilton. This Place Type includes a variety of residential subdivisions ranging in densities from 0.3 to 3.0 units per acre. The higher density development is adjacent to Round Hill and resulted from the Round Hill Associates rezoning that was approved in 1991. Remaining areas include densities from 0.3 to 1.0 units per acre. Most neighborhoods are connected to Town water and sewer.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Large Lot Residential</li> <li>• Cluster Residential Subdivision</li> </ul>	<ul style="list-style-type: none"> <li>• Accessory Residential Units</li> <li>• Agriculture</li> <li>• Equine Facilities</li> <li>• Rural Economy</li> </ul>	<ul style="list-style-type: none"> <li>• Public Facilities</li> <li>• Civic, Cultural, &amp; Community</li> <li>• Institutional</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

## DESIGN CHARACTERISTICS

### Context

Low-density residential neighborhoods maintaining the development pattern around Hamilton and Round Hill. Much of these JLMA areas has been developed and remaining sites should develop with a consistent and compatible pattern and intensity.

**Street Pattern:**

Contour Forming, Fragmented Parallel

**Block Length:**

Irregular (0.5-5 mile)

**Building Setback:**

Varies (incorporate existing natural features to protect viewsheds)

**Parking:**

Surface lot, driveway, garage, shared

**Open Space:**

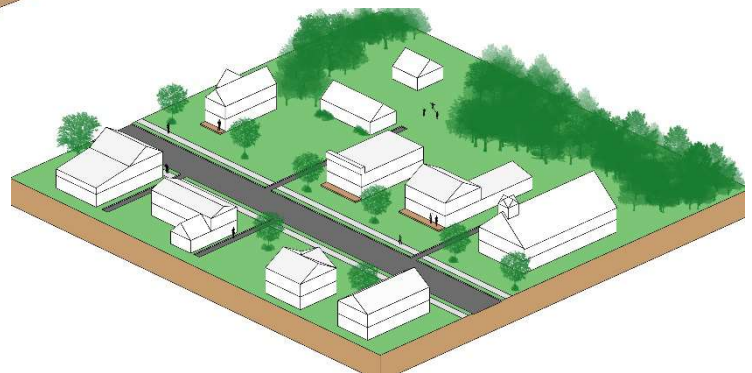
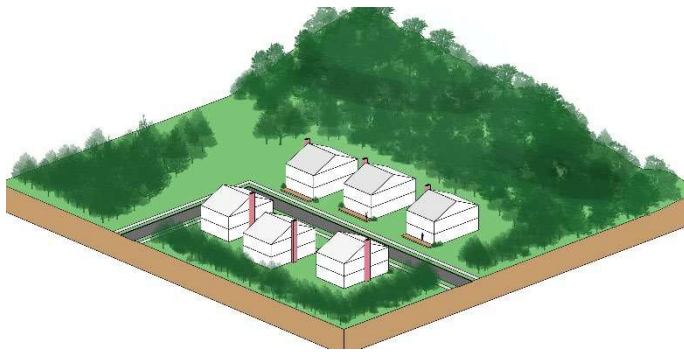
30-50% of site- Recreation, Community, Natural, Environmental and Heritage, and/or Agriculture

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: 0.3 – 2.0 du/acre**

**Building Height: 1-3 stories**



### Transition

Buildings and structures should be surrounded by natural buffers that visually screen the development from view of surrounding roads and from other developments.



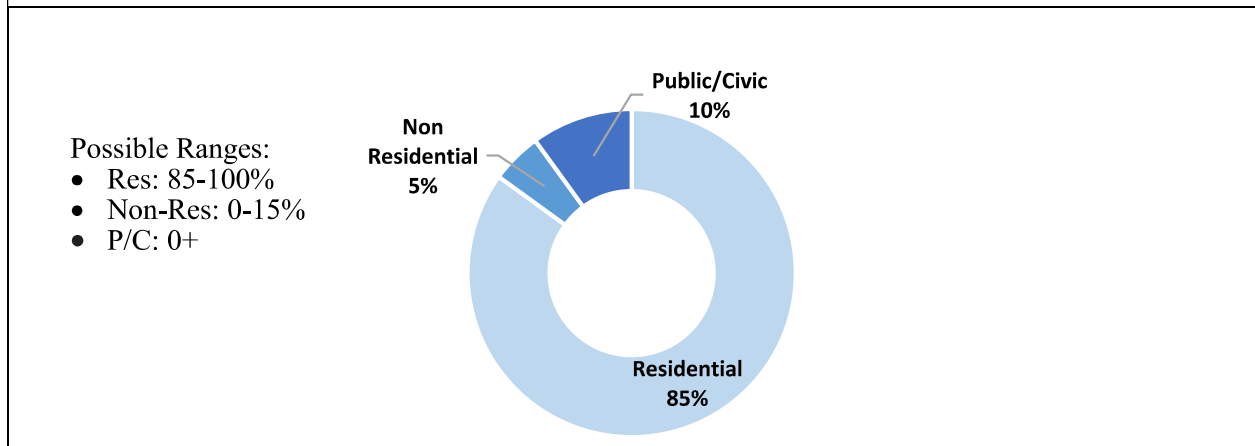
## Leesburg JLMA Residential Neighborhood



The Leesburg JLMA Residential Neighborhood reflects a suburban residential pattern with densities between 0.3 and 4.0 units per acre. This Place Type applies primarily to areas north of Route 7 near the eastern boundary of the Town and adjacent to the Woodlea Hills community on the southwest side of the Town. Single family detached and attached homes are the predominant land use. Retail and service uses that serve the routine shopping needs of the immediate neighborhood (e.g., grocery, gas stations, drive-throughs, dry cleaners, etc.) should be integrated into the area at significant intersections and along major roads. Neighborhoods include a range of amenities and community open space.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Single Family Detached Residential</li> <li>• Single Family Attached Residential</li> </ul>	<ul style="list-style-type: none"> <li>• Accessory Residential Units</li> <li>• Public Facilities</li> <li>• Multi-Family Residential</li> <li>• Retail &amp; Service Commercial</li> </ul>	<ul style="list-style-type: none"> <li>• Civic, Cultural, &amp; Community</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

### Preferred Mix of Uses



## DESIGN CHARACTERISTICS

### Context

Low-density residential neighborhoods maintaining the development pattern along the eastern and western boundary of Leesburg. Much of these JLMA areas has been developed and remaining sites should develop with a consistent and compatible pattern and intensity.

**Street Pattern:**

Fragmented Parallel, limited Loop and Cul-de-sac

**Block Length:**

600-1,500 feet

**Building Setback:**

Shallow to medium

**Parking:**

Driveway, garage, or on-street

**Design Amenities:**

Sidewalks, street trees, lighting, crosswalks, common open spaces

**Retail and Service:**

Neighborhood - individual uses under 5,000 or small center up to 30,000 square feet

Community- individual uses under 30,000 or center between 30,000-150,000

**Open Space:**

Minimum 30% of site- Recreation, Community, and/or Natural, Environmental and Heritage

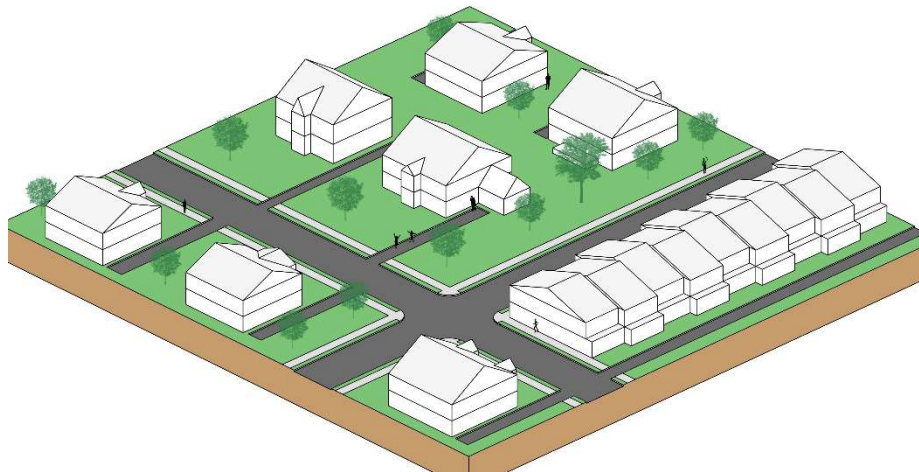
### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Residential Density: Up to 4.0 du/acre**

**Total Nonresidential FAR: Up to 0.4**

**Building Height: 1-3 stories**



**Transition**

Development is intended to be consistent with surrounding neighborhoods. Transitions should be gradual, and appropriate transitional techniques include variations in building orientation, height step down, and creative and extensive use of landscaping and natural features. Fencing or other barriers should not be used as the sole means of screening and buffering. Where possible, new developments within Leesburg JLMA Residential Neighborhood areas should locate uses along their perimeter that are similar in use and density with adjacent neighborhoods.



# Leesburg JLMA Employment



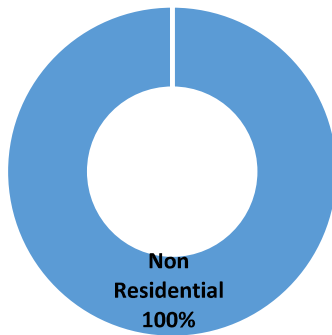
Leesburg JLMA Employment areas provide opportunities for a range of light and general industry uses similar to the existing pattern south of Route 7 and around the Leesburg Executive Airport. This Place Type accommodates flex space, manufacturing, warehousing, contractor services and other productive uses.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• Light Production</li> <li>• Research &amp; Development</li> <li>• Warehousing</li> <li>• Contractor without Outdoor Storage</li> <li>• Fleet &amp; Equipment Sales &amp; Service</li> <li>• Flex Space</li> </ul>	<ul style="list-style-type: none"> <li>• Office</li> <li>• Retail &amp; Service Commercial</li> <li>• Data Centers</li> </ul>	<ul style="list-style-type: none"> <li>• Institutional</li> <li>• Civic, Cultural, &amp; Community</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

### Preferred Mix of Uses

Possible Ranges:

- Res: 0%
- Non-Res: Up to 100%
- Public/Civic: 0%+



## DESIGN CHARACTERISTICS

### Context

Primarily separate one-to-two-story buildings used for industrial and employment uses.

**Street Pattern:**

Rectilinear Grid or Fragmented Parallel

**Block Length:**

300-1,000 feet

**Building Setback:**

Short to medium; greater if flex use

**Parking:**

Structured, on-street, accessory, or short-term

**Design Amenities:**

Sidewalks, street trees, shade trees, bike racks

**Retail and Service:**

Employment Supportive-Limited to support the predominate use. Generally 10% of the gross FAR of the employment uses.

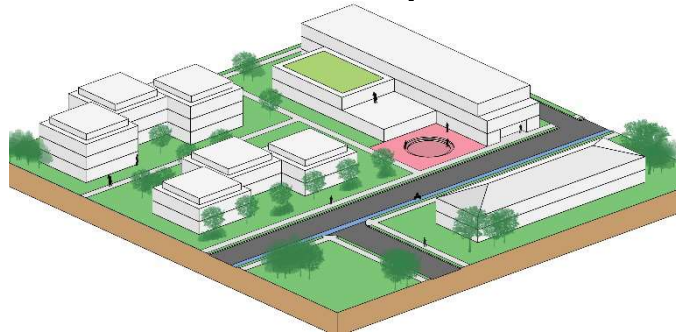
**Open Space:**

20% of the site- Recreational (sidewalks or trails), Community (outdoor seating area), and/or Natural, Environmental and Heritage

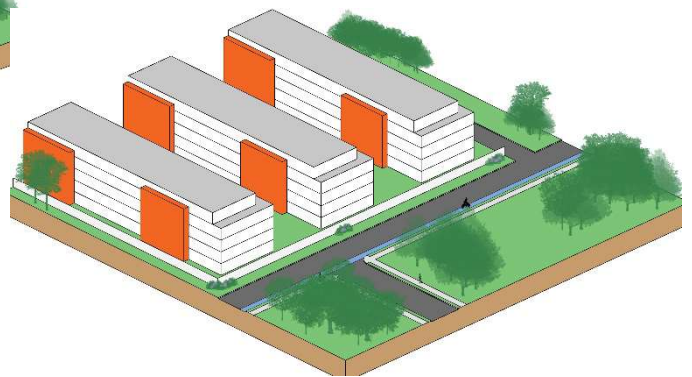
### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total Nonresidential FAR: Up to 1.0**



**Building Height: 1-4 stories**



### Transition

Extensive buffering including berming and, where appropriate, walls can separate and screen parking, loading and other industrial activities from public roads and adjacent residential uses. Larger projects should situate lower intensity uses next to residential or other sensitive uses. Landscaping, lawns and retained natural areas will frame buildings and streets.

# Leesburg JLMA Industrial/Mineral Extraction



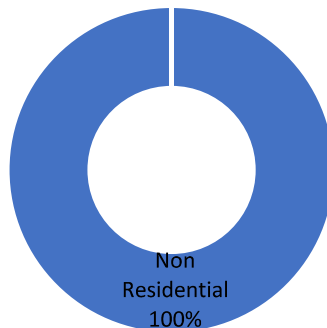
Leesburg JLMA Industrial/Mineral Extraction areas consist of large manufacturing, warehousing, and other productive uses. Streets in this district are typically designed to accommodate freight ingress and egress. This Place Type also includes mineral extraction areas such as quarries and mines as well as associated uses such as asphalt plants and cement plants. Industrial and mineral extraction uses are incompatible with residential uses due to the prevalence of outdoor storage and the emissions of noise, odor, and vibrations. Buffers between these uses and residential uses are necessary to ensure compatibility and maintain commercial viability.

Core Uses	Complementary Uses	Conditional Uses
<ul style="list-style-type: none"> <li>• General and Heavy Manufacturing and Assembly</li> <li>• Warehousing</li> <li>• Contractor with Outdoor Storage</li> <li>• Data Centers</li> <li>• Fleet &amp; Equipment Sales &amp; Service</li> <li>• Outdoor Storage</li> <li>• Public Utilities</li> <li>• Quarry</li> </ul>	<ul style="list-style-type: none"> <li>• Retail &amp; Service Commercial</li> <li>• Flex Space</li> <li>• Light Production</li> <li>• Research &amp; Development</li> </ul>	<ul style="list-style-type: none"> <li>• Office</li> <li>• Public Facilities</li> <li>• Special Activities</li> <li>• Parks &amp; Recreation</li> </ul>

### Preferred Mix of Uses

Possible Ranges:

- Res: 0%
- Non-Res: Up to 100%
- Public/Civic: 0%+



## DESIGN CHARACTERISTICS

### Context

Primarily one-to-two-story buildings used for warehousing, data centers, contractor services, or manufacturing.

**Street Pattern:**

Rectilinear Grid, Contour Forming

**Block Length:**

300-1,000 feet

**Building Setback:**

Deep, varying with use

**Parking:**

Surface Lot

**Design Amenities:**

Sidewalks, street trees, shade trees

**Retail and Service:**

Employment Supportive-Limited to support the predominate use. Generally 5% of the gross FAR of the employment uses.

**Open Space:**

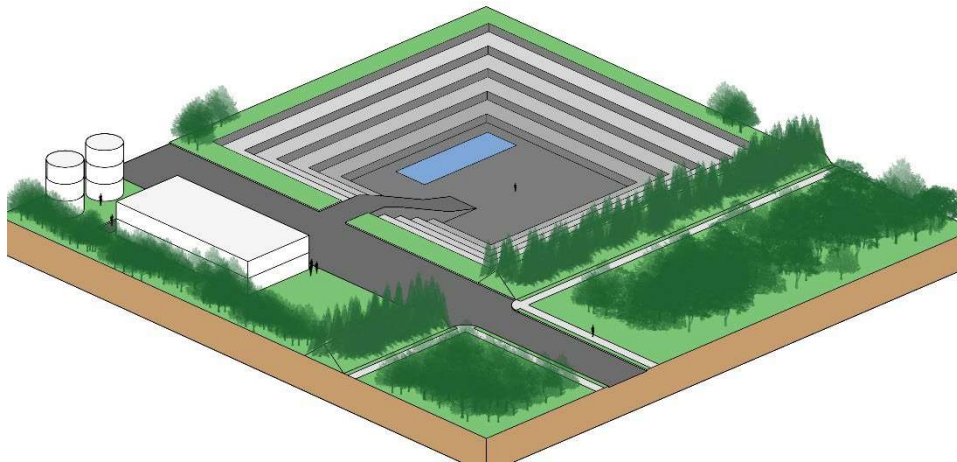
20% of the site- Recreational (sidewalks or trails), Community (outdoor seating area), and/or Natural, Environmental and Heritage

### Place Type Rendering

*An oblique projection of development within a Place Type to showcase the qualitative characteristics of how buildings within the Place Type should interact to create activity.*

**Total Nonresidential FAR: Up to 1.0**

**Building Height: 1-4 stories**



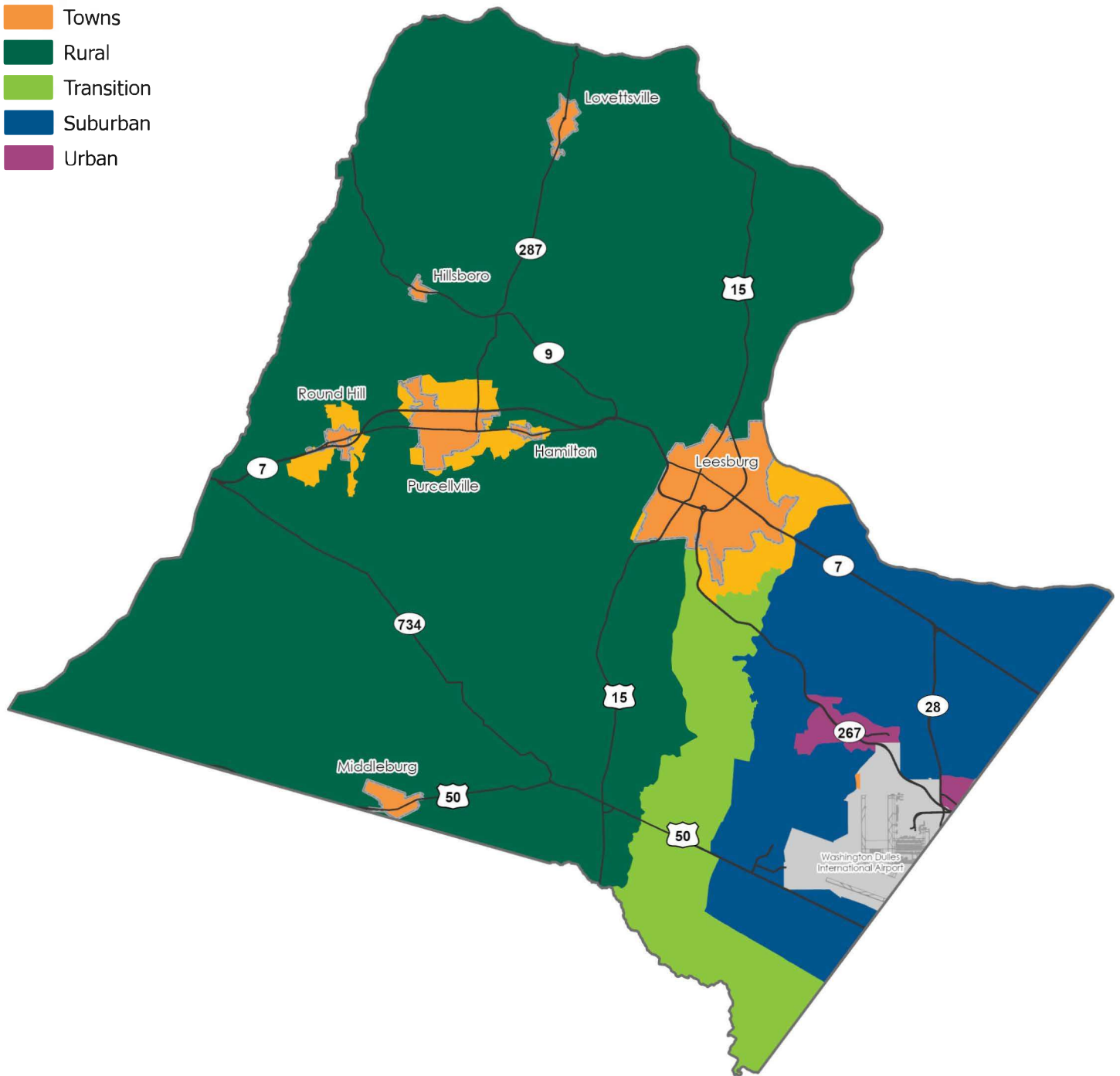
**Transition**

Transitions between Leesburg JLMA Industrial/Mineral Extractive uses and other developments, in particular adjacent residential neighborhoods, are critically important to the viability of long-term industrial operations. Extensive buffering, berming, and distance should separate and screen adjacent uses. Larger projects should situate lower intensity uses next to residential or other sensitive uses. Storage and loading areas are to be oriented away from and screened from streets and adjacent uses.





- Town JLMA
- Towns
- Rural
- Transition
- Suburban
- Urban

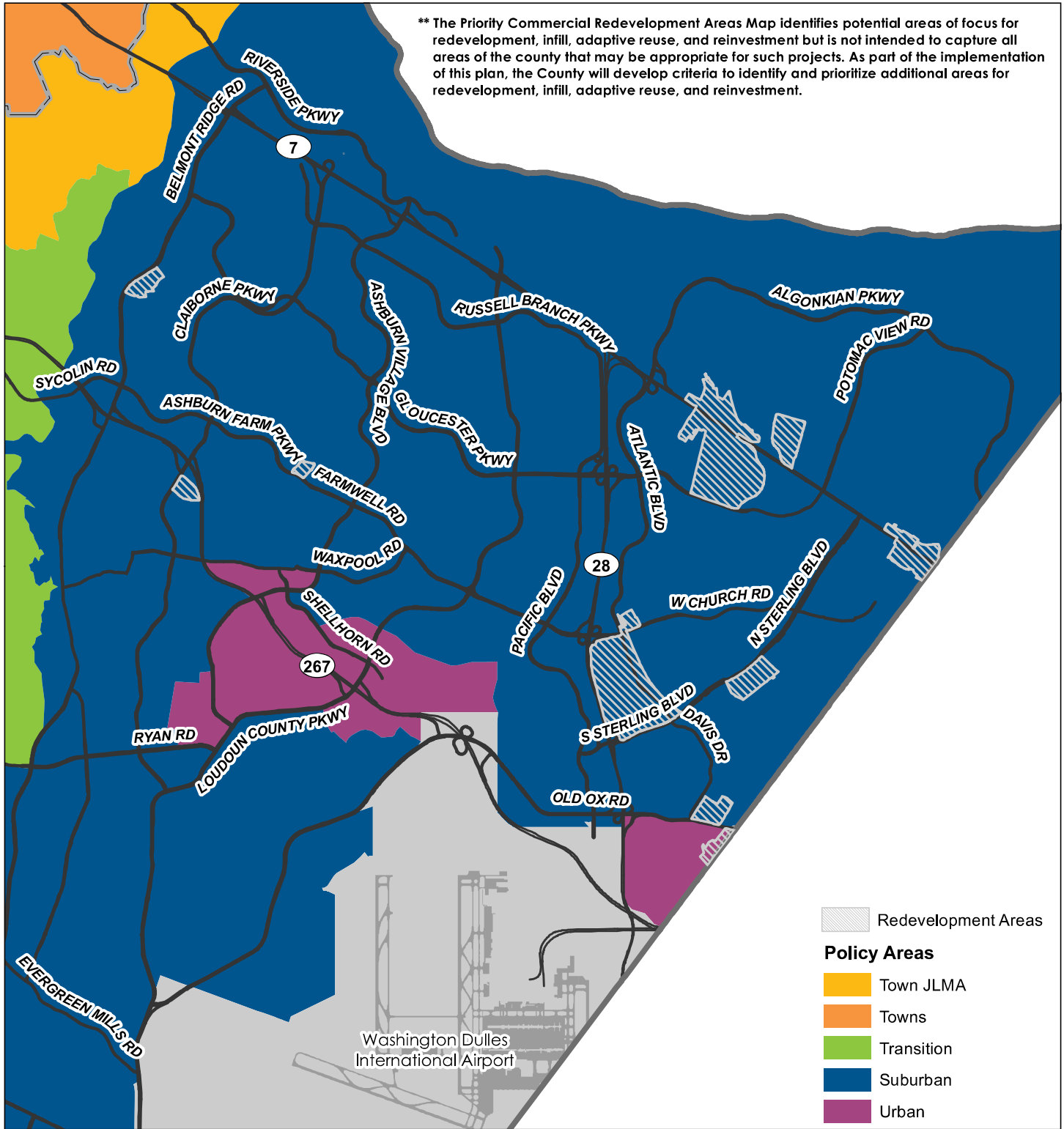


Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



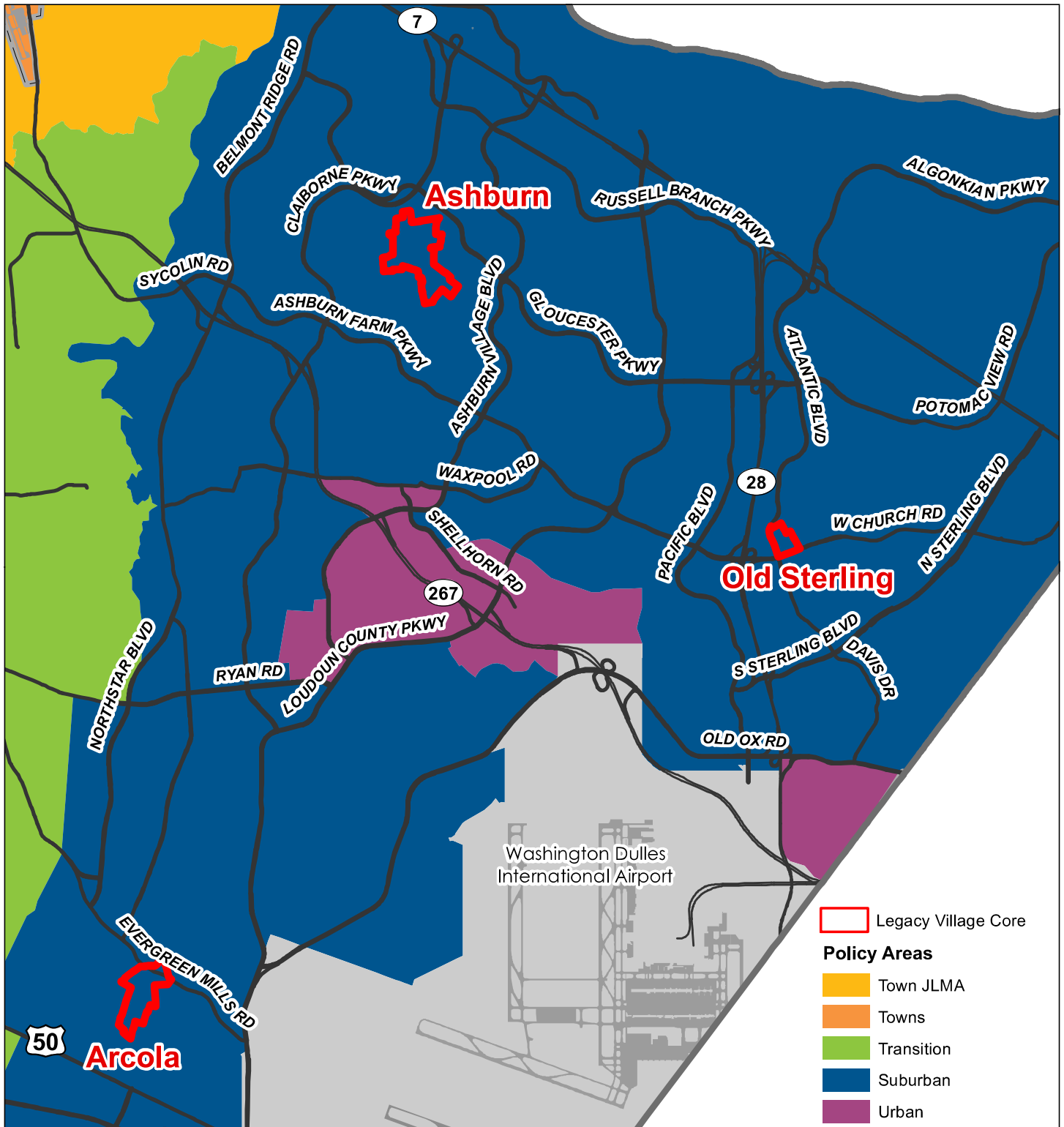


\*\* The Priority Commercial Redevelopment Areas Map identifies potential areas of focus for redevelopment, infill, adaptive reuse, and reinvestment but is not intended to capture all areas of the county that may be appropriate for such projects. As part of the implementation of this plan, the County will develop criteria to identify and prioritize additional areas for redevelopment, infill, adaptive reuse, and reinvestment.



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



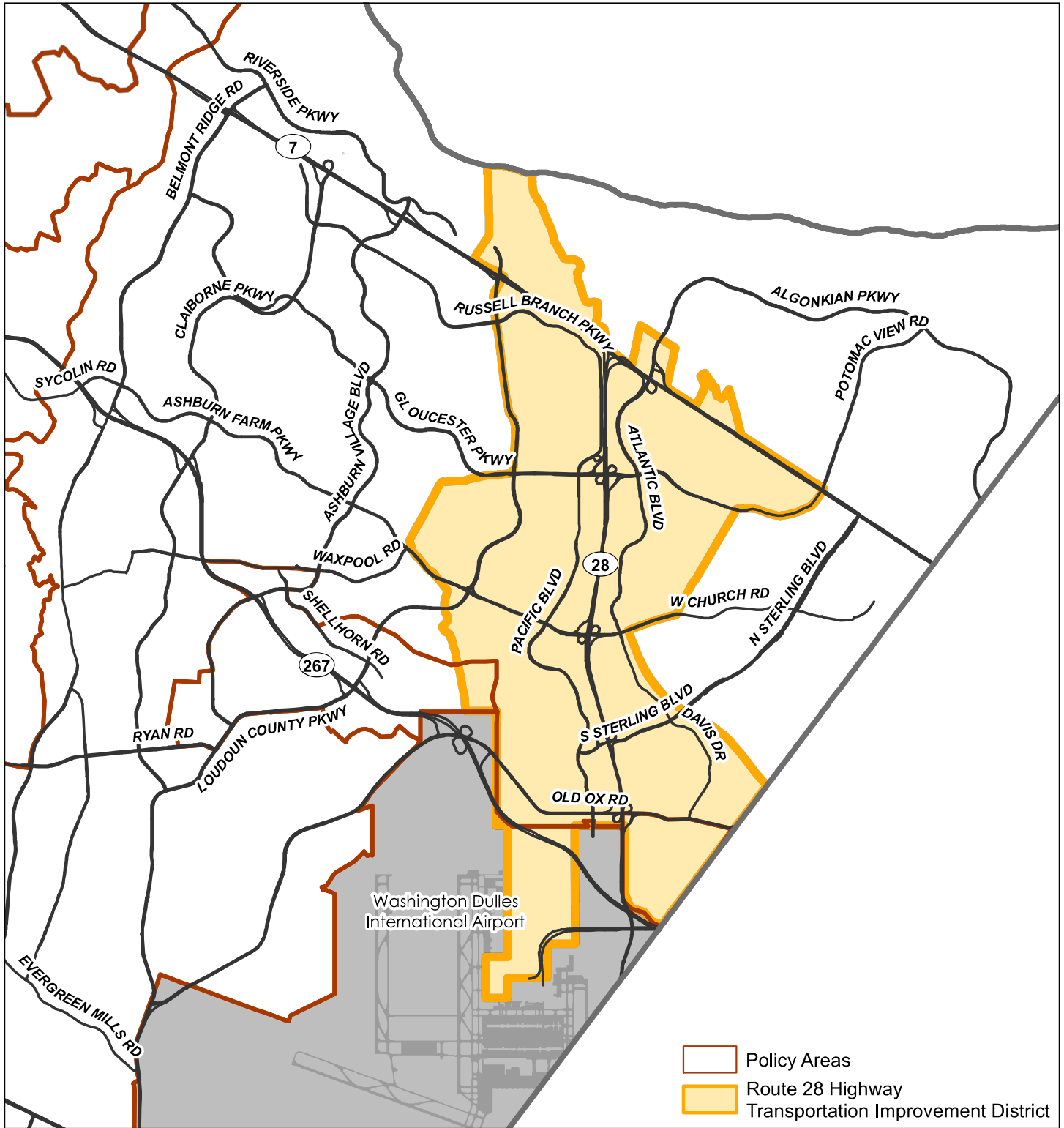


Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



Map Number 2019-148

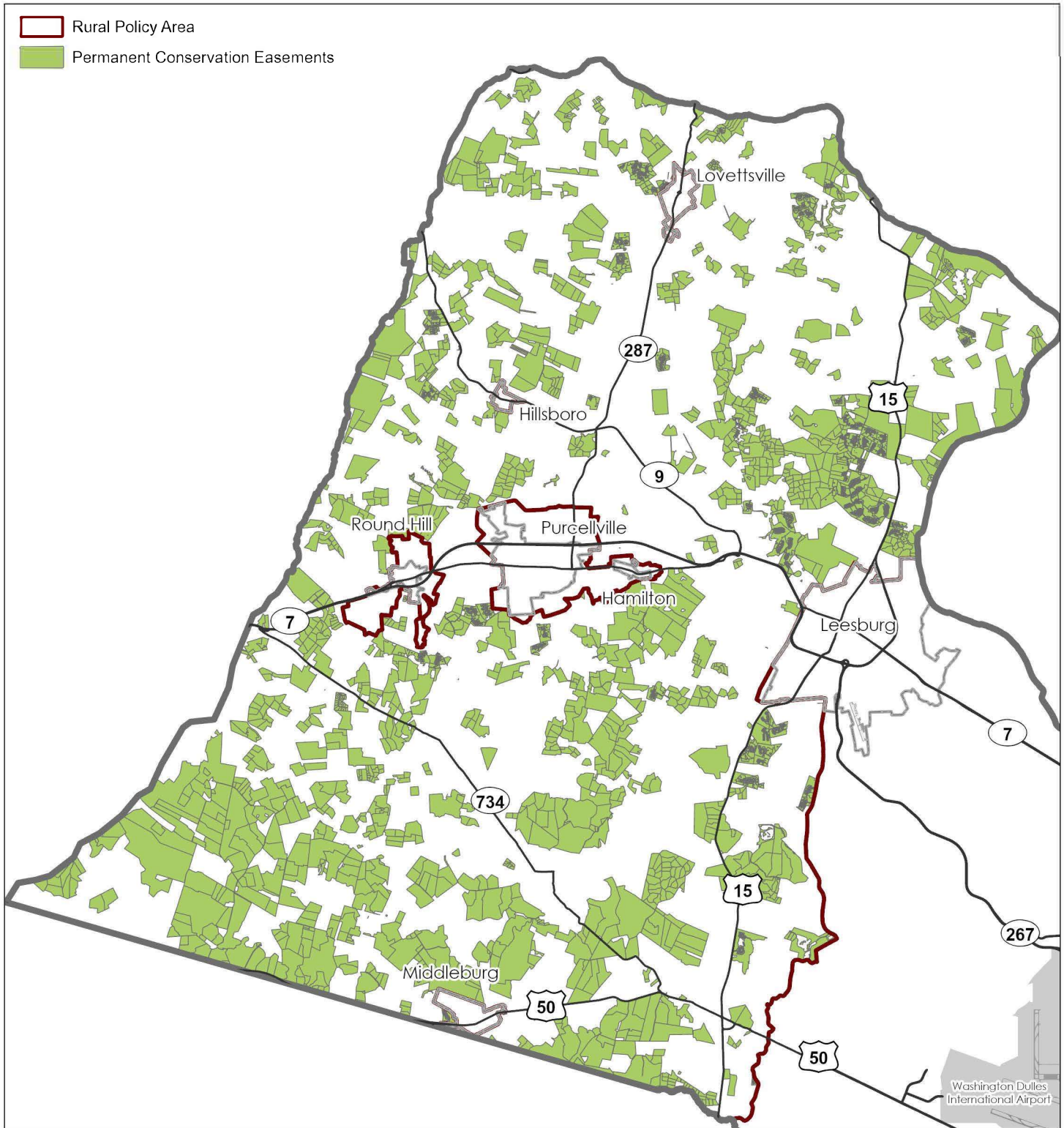
Loudoun County  
**Route 28 Highway Transportation  
 Improvement District Area**  
 2019 General Plan



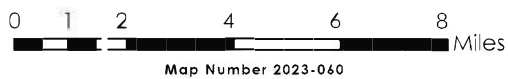
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



Loudoun County  
**Conservation Easements  
in Rural Policy Area: 2023**  
2019 General Plan



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



# Chapter 3 – Natural, Environmental, and Heritage Resources

## Table of Contents

Vision.....	2
Introduction.....	2
Topics.....	3
Water Resources .....	3
Geologic and Soil Resources .....	5
Forest, Trees, and Vegetation .....	7
Historic and Archaeological Resources .....	8
Cultural Landscapes.....	10
Plant and Wildlife Habitats.....	10
Complementary Elements.....	11
Sustainability.....	12
Policies, Strategies, and Actions.....	14
Reference Maps .....	33

*This page left blank for printing purposes.*

# Chapter 3 – Natural, Environmental, and Heritage Resources

## Vision

Protect and enhance the County’s natural, environmental, and heritage resources, which are fundamental to the health, safety, welfare, sustainability, and enjoyment of current and future generations.

## Introduction

Abundant natural, environmental, and heritage resources define Loudoun County’s unique sense of place. Loudoun County has a tradition of being in the forefront of natural, environmental, and heritage resource protection in Virginia, which is evident in past planning efforts. The *Loudoun County Choices and Changes Plan*, adopted in 1991, grouped natural, environmental, and heritage resources into categories that shared common elements, strengthening the relationships among them. The 2001 *Revised General Plan* retained the grouping of elements while also developing a Green Infrastructure strategy for the conservation, preservation, and restoration of these elements. The *Revised General Plan* also identified a conservation design process to allow for conservation of the natural, environmental, and heritage resource elements while also providing for full development of a site. The *Loudoun County 2019 Comprehensive Plan* (Comprehensive Plan) continues to encourage the use of a design process to better protect and enhance the County’s natural, environmental, and heritage resources and incorporate such features into site design.

**Protect and enhance natural, environmental, and heritage resources through the following:**

**Conservation**

Careful management of natural and environmental features within the built environment.

**Preservation**

Retaining and protecting natural, environmental, and heritage resources.

**Restoration/Recapture**

Enhancing natural, environmental, and heritage resources wherever possible.

**Education**

Communicating the importance of natural and heritage resources.

Natural, environmental, and heritage resources include the Potomac River edge, major rivers, stream corridors, floodplains, wetlands, steep slopes, ridges and mountainsides, forested and vegetative landscapes, limestone geology areas, farmlands, soil resources, important plant and wildlife habitats, historic and archaeological sites, scenic areas and corridors, designated heritage areas, battlefields, historic cemeteries, and cultural landscapes. Complementary elements, such as air quality, aural environment, and the night sky are also important to the health, safety, and welfare of Loudoun residents. Natural, environmental, and heritage resources are tangible assets that make



the County an appealing place to live, work, learn, and play while contributing directly and indirectly to Loudoun's economy. Preserving, protecting, and enhancing these resources is critical to the County's long term economic, environmental, and social sustainability.

This chapter provides guidance for the protection of natural, environmental, and heritage resources in conjunction with the development and redevelopment of the County. These resources are important County assets and should be a primary consideration in the development of a site. Although many of the County's best preserved natural, environmental, and heritage resources are located within the Rural Policy Area, important resources have been identified in all parts of the County and are, in many cases, critical to the character of individual communities both east and west (See Natural and Environmental Resources Map). The County has a history of protecting and preserving these important resources through policies, regulatory measures, land acquisition, and educational programs. The protection of these resources will not only provide environmental and heritage benefits but will enable residents to experience the natural environment within the context of the built environment. The protection of these resources is interrelated, creating a network of natural, environmental, and heritage resources. For instance, the protection and preservation of existing forest cover adjacent to a stream helps to filter pollutants from entering the stream and provide for streambank stabilization, while also improving air quality, conserving energy, creating wildlife corridors, and protecting archaeological resources.

Updating and adopting zoning regulations and development standards to implement the objectives of this chapter will be important for protecting the health, safety, and welfare of Loudoun residents as well as preserving natural, environmental, and heritage resources for the enjoyment of future generations.

## Topics

### Water Resources

River and Stream Corridor Resources (RSCR) consist of rivers and streams that drain 100 acres or more, associated 100-year floodplains, adjacent steep slopes, and a 50-foot management buffer surrounding the floodplains and adjacent steep slopes (See River and Stream Corridor Resources Map). RSCRs constitute the County's largest natural ecosystem, supporting air quality, water quality, and biological diversity. If the floodplain and adjacent steep slopes are less than 100 feet beyond either stream bank, a 100-foot minimum stream buffer will protect the river and stream corridor. The buffers help to maintain stream bank stabilization, temperature moderation, flood control, and aquatic habitat as well as filter nutrients and sediments from upland disturbances and adjacent development. Because rivers and streams and their associated floodplains are dynamic, the buffers help to ensure that development adjacent to the floodplain today will not be in the floodplain in the future. The 50-foot management buffer can be reduced if it can be shown that a reduction does not adversely impact the floodplain, adjacent steep slopes, wetlands, and riparian forests of the river and stream corridor.

*The identification of buildable areas on a site will protect and preserve river and stream segments draining less than 100 acres and wetlands that are not part of the RSCR.*

The County has two State-designated Scenic Rivers: Goose Creek and the segment of Catoctin Creek that runs from Waterford to the Potomac River. These scenic rivers are an important part of the County’s river and stream corridor system. The County also seeks to preserve the Potomac River shoreline.

Major water resource issues for the County include ensuring an adequate supply of drinking water, protecting groundwater and surface water from contamination and pollution, stormwater management, and preventing the degradation of water quality in the watersheds (See Watersheds Map).

### Impaired Streams

Many stream segments across the County have been designated as “impaired” by the Virginia Department of Environmental Quality (DEQ). In 2009, the County conducted an assessment of streams within all the County’s watersheds. The County assessment indicated impairments in over 75 percent of County streams (see Impaired Streams Map). One tool used by the State to help restore these degraded waters is the Total Maximum Daily Load (TMDL) program, which is defined by Section 303(d) of the Clean Water Act (CWA). The TMDL represents the amount of a pollutant that a waterway can assimilate and still maintain its health. The TMDL identifies the responsible pollutant and the suspected cause and source of the pollutant. Based on the results of the TMDL, DEQ may require the County to develop and implement a TMDL Action Plan to reduce pollutants. If required, actions may include stormwater pollutant reduction and mitigation projects, such as stormwater infrastructure retrofits, reforestation, stream restoration, and/or riparian plantings. Additionally, Loudoun County is located within the Chesapeake Bay Watershed and is currently subject to the Chesapeake Bay TMDL and the Chesapeake Bay Watershed Implementation Plan (WIP), which requires state jurisdictions within the watershed, including Virginia, to meet sediment, phosphorus, and nitrogen reduction goals by 2025.

*The County has completed several efforts regarding water resources since 2001:*

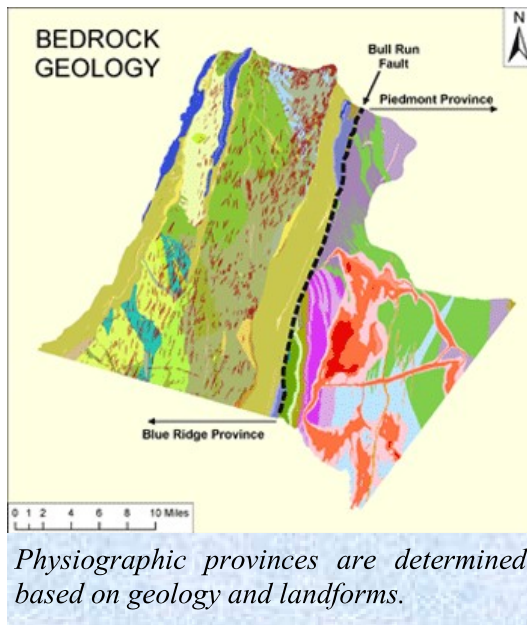
- *Water quality monitoring;*
- *2009 County Stream Assessment;*
- *Strategic Watershed Management Solutions;*
- *Chesapeake Bay Watershed Implementation Plan;*
- *Comprehensive Watershed Management Plan;*
- *Upper Broad Run Watershed Management Pilot Project; and*
- *Countywide Floodplain Remapping of February 17, 2017.*

Due to the length of the TMDL process and the number of impairments in the County, it may take decades before certain water quality restoration efforts achieve positive results. Additionally, given the anticipated rate of development within the County, many areas will likely have entitlements prior to the development of the local TMDL Action Plans. Therefore, a proactive approach towards water quality efforts will help to avoid costly and time-consuming processes to restore water quality to the required standards after development is completed. Actions and cooperation by all

sectors including County Government, land developers, and property owners are needed to effectively control and meet required pollution standards to protect water resources.

### Surface and Groundwater Resources

Groundwater supply is the primary drinking water source for residents of Loudoun's western towns and rural areas. Loudoun Water and the Town of Leesburg source drinking water from the Potomac River, and Loudoun Water also uses two reservoirs located along Beaverdam Creek and Goose Creek. The western towns provide drinking water from wells, and the Town of Purcellville augments this with surface water from the J. T. Hirst Reservoir. As of 2018, there are over 15,000 private groundwater wells in the County, mostly in western Loudoun. Increasing impervious land cover contributes to diminishing groundwater capacity and stream degradation, as rainwater that was once filtered through the soil to replenish groundwater and remove pollutants is now kept above ground. Stormwater is then carried via culverts and stormwater pipes directly to local streams bypassing the natural filtration process.



### **Geologic and Soil Resources**

The eastern half of Loudoun County is located in the Piedmont physiographic province, and the western half is in the Blue Ridge physiographic province. The Bull Run fault, coextensive with the eastern edge of the Catoctin Mountain, forms the boundary line between the two provinces. Soils and geologic information are important considerations in land development, predicting potential impacts on erosion, water quality and quantity, and failing slopes, as well as informing mitigation of adverse impacts post-development.

#### Limestone

An area of approximately 18,000 acres (approximately 5.5 percent of the County) that lies predominately north of Leesburg and east of Catoctin Mountain is characterized as karst terrain (See Limestone Overlay District Map). Karst terrain refers to areas where mildly acidic water has gradually dissolved the underlying limestone and other carbonate rocks, creating a landscape characterized by underground cavities, sinkholes, and springs. These areas are susceptible to increased cavity collapse, ground slippage, groundwater pollution, and threats to the stability of foundations and structures. In 2010, the Board of Supervisors (Board) adopted amendments to the Zoning Ordinance that established the Limestone Overlay District (LOD), which regulates development in karst areas.

#### Prime Agricultural Soils

Prime agricultural soils are soils that are best suited for conventional agricultural use. Nineteen

percent of the County consists of prime farmland as defined by the U.S. Department of Agriculture. These soils are usually found in areas that are nearly level to gently sloping, well drained, and with access to water sources. Loudoun's remaining best agricultural soils are generally located in the Rural Policy Area. Prime agricultural soils in Loudoun are often seen as desirable for residential development. Once this land-based resource is lost, however, it cannot be reclaimed. Because the County has emphasized the rural economy as an important part of its overall economic health, prime farmland and agricultural soils are especially valuable. Since the establishment of the Loudoun County Agricultural and Forestal District (AFD) Program in 1979, over 43,000 acres are enrolled within 23 Agricultural and Forestal Districts (AFDs)<sup>1</sup> throughout the County.

### Mountainside and Steep Slopes

Loudoun's mountains are a valued environmental resource and distinctive feature of the County's scenic beauty. Mountainsides contain headwaters to many of the County's streams and are identified as a critical groundwater recharge area for western Loudoun County. Residents, visitors, and rural businesses value the scenic vistas that the hills and mountains provide. They are also highly sensitive to land disturbance and development. In addition to the destruction of prime



*Loudoun's mountains are a significant attraction for residents and visitors and contribute to the County's distinctive beauty.*

viewsheds, uncontrolled land disturbance within these areas can cause major soil slippage, debris flows, or landslides. Disturbances that can initiate these land surface failures include removal of trees and vegetation; cutting, filling, or blasting of the soil and bedrock; and altering the soil moisture content by excessive groundwater withdrawal or changing surface water runoff. The Zoning Ordinance regulates these areas through the Mountainside Development Overlay District (MDOD). The MDOD contains land use restrictions and performance standards to minimize the destruction of individual resources and the disturbance of the ecological balance of these resources. The boundaries of the MDOD are based on a range of both technical and aesthetic factors. Mountainside areas are divided into three areas depending on the elevation and the types of resources present as determined by weighted analytical criteria (Somewhat Sensitive, Sensitive, and Highly Sensitive). Policies in this Plan also encourage mountainside areas to be placed under permanent open space easement. Updates to the MDOD are included as an Action to bring the Zoning Ordinance and the Plan guidance into alignment.

Recognizing the importance of protecting steep slopes beyond the mountainous areas of the County, in 1993 the Board adopted an amendment to the Zoning Ordinance establishing standards

---

<sup>1</sup> As of September 25, 2017

for development on steep slopes. Since the adoption of the Steep Slope standards, several revisions have occurred, resulting in greater flexibility in the standards. Steep slopes and moderately steep slopes occupy an area of approximately 53,000 acres (approximately 16 percent of the County). Moderately steep slopes are areas with a 15 percent to 25 percent grade (identified by Slope Class D on Loudoun County soil maps). Steep slopes refer to more environmentally critical slopes with a grade greater than 25 percent (identified by Slope Class E on Loudoun County soil maps). Improper use and disturbance can trigger increased erosion, building failure, road failure, downstream flooding, and other hazards.



*This specimen Shumard oak at Algonkian Regional Park is one of the largest trees in Loudoun County, measuring 112 feet tall and 176 inches around.*

### **Forest, Trees, and Vegetation**

The County's forests and trees improve air and water quality, offer important habitat for birds, small mammals, and other wildlife, and provide buffers between communities. Forests and trees conserve energy by providing shade and evaporative cooling through transpiration. They also reduce wind speed and redirect airflow, reduce stormwater runoff and soil erosion, and can increase real property values. Riparian forests along streams provide the greatest single protection of water quality by filtering pollutants from stormwater runoff, decreasing stream bank erosion, and maintaining the physical, chemical, and biological condition of the stream environment. The County also has some of the state's best hardwood stands for

lumber and veneer production. Working forests in rural areas contain valuable stands of hardwood timber, while trees and forest resources in the more urban portions of the County help to make them attractive places to live, work, learn, and play.

The County supports the incorporation of existing tree cover into required buffers as well as the control and removal of invasive species. The use of existing vegetation to meet screening and landscape buffer requirements is preferred over the removal and planting of new vegetation. Action steps call for the submittal of a Tree Cover Inventory as part of development applications to evaluate existing tree cover and identify areas worthy of preservation. Forest resources are also protected through AFDs, easements, and other voluntary means, as well as through the implementation of the MDOD, LOD, and Steep Slope standards in the Zoning Ordinance.

## Historic and Archaeological Resources

The cultural heritage of the County is reflected in its remaining rural landscapes, scenic road networks, historic structures, and archaeological sites. Identification, preservation, conservation, and sensitive reuse of these resources is critical for the retention of the County's distinctive character. Where these resources have not yet been identified or studied, public and private resource surveys are increasingly important to inventorying and preserving them. Most of these elements will remain in private ownership and can be preserved through private stewardship, protective buffers, donation of open space easements, County historic district zoning standards, and context-sensitive site design. A number of incentive-based programs can also be used, including state and federal tax credit programs.



*Archaeological Investigations at Lansdowne.*

Since 1972, Loudoun County has helped protect its unique historic assets through the designation and regulation of local historic districts under the County's Zoning Ordinance. There are six County-administered Historic and Cultural Conservation Districts (Aldie, Bluemont, Goose Creek, Oatlands, Taylorstown, and Waterford) and two County-administered Historic Site Districts (Welbourne and the Broad Run Toll House properties). The County has also designated a Historic Roadways District, the Beaverdam Historic Roadways District, which comprises a network of 32 rural roads (See Historic Districts Map). In addition, the incorporated towns of Leesburg, Middleburg, and Purcellville administer local historic districts through their zoning ordinances.



*Oatlands Plantation, a historic estate dating from the late 18<sup>th</sup> century, is one of 88 County sites listed on the National Register of Historic Places.*

There are also five National Historic Landmarks in the County, including Balls Bluff Battlefield, Dodona Manor, Oatlands Plantation, Oak Hill, and Waterford. Resource surveys have identified nearly 7,000 individual historic structures and archaeological sites in the County to date. The County has 88 sites listed in the National Register of Historic Places. The County last conducted a comprehensive architectural resource survey in 2004; however, an analysis of the number of heritage resources that may have been impacted or lost in the interim has not

been conducted. The County's inventory of heritage resources is constantly expanding as property owners, developers, and preservation organizations document and record new resources.

Most of the County-initiated comprehensive survey work was completed in the early 2000s, such as the Post-Civil War Structure Survey (2003) and an [African-American Historic Architectural Resources Survey](#) (2004). The County also conducted surveys in 2016 for the [Ball's Bluff Battlefield Expansion Project](#) and a Rural Schools Survey. The County and state database of surveyed resources is largely augmented through the Phase 1 archaeological and historic resources surveys that are required with legislative and preliminary subdivision applications, as well as private property owners requesting listing in the National Register of Historic Places.

There is a difference: local, state, and national historic designation

- *National Historic Landmark (NHL) (five in Loudoun County) – **Honorary** – deemed significant to all Americans because of their exceptional values or qualities, which help illustrate or interpret the heritage of the U.S. If a property is named a NHL, it is also listed on the National Register of Historic Places (NRHP) and the Virginia Landmarks Register (VLR).*
- *National Register of Historic Places (76 County historic districts and individual properties within Loudoun County) – **Honorary** – includes buildings, structures, sites, objects, and districts significant in American history, architecture, archaeology, engineering, and culture.*
- *Virginia Landmarks Register (two in Loudoun County) – **Honorary** – eligible for but not automatically listed in the National Register if a majority of property owners submit notarized objections to the VDHR.*
- *Local Historic Designation (six local historic districts, 2 individual historic properties, and 1 historic roadway district) – **Regulatory** – the only designation regulated by the County or incorporated Towns through zoning overlays. Does not regulate routine repairs and maintenance.*

The Board adopted the [Heritage Preservation Plan](#) (HPP) in 2003 and a subsequent amendment to the HPP in 2009. The Board created the Heritage Commission (HC) in 2011 to implement many of the recommendations in the HPP. The HC brings a range of public and private sector experience and expertise to heritage issues. Since the adoption of the HPP in 2003, the County has recognized the need to focus attention on heritage resources associated with historically marginalized communities in the County. Because African American communities and Native American communities are not well represented in the historic written record, the County recognizes the importance of archaeological resources, oral histories, historic settlements, cemeteries, burial grounds, and places of worship to understand, preserve, and interpret the lives and contributions of these Loudoun residents (See African American Historic Communities Map). Development applications will be evaluated using both the HPP and this Plan.

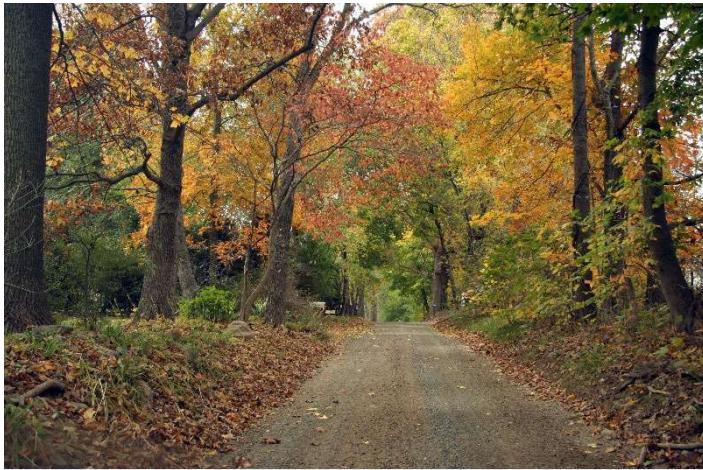
## Cultural Landscapes

Cultural landscapes include heritage areas and corridors, scenic byways and waterways, battlefields, and historic cemeteries. There are several roadways within the County that are designated as Virginia Byways. Goose Creek and a portion of Catoctin Creek are designated as State Scenic Rivers. In 2002 the County established the Beaverdam Creek Historic Roadways District to protect a cultural landscape that has changed little since Loudoun County’s formation in 1757.



*Catoctin Creek*

Photo Credit: James Hanna



*Loudoun County’s scenic network of more than 200 miles of unpaved roads is the most extensive in the state.*

A nationally recognized heritage area, The Journey Through Hallowed Ground, as well as a state-designated heritage area, the Mosby Heritage Area, fall within the boundaries of Loudoun County. The Journey Through Hallowed Ground follows Route 15/29 from Gettysburg in Pennsylvania (a designated National Byway), through Loudoun County, to Monticello near Charlottesville, Virginia. In 2008, the Board passed a resolution in support of the Mosby Heritage Area, and the County is a partner with The Journey Through Hallowed Ground project. The

Mosby Heritage Area, formed in 1995, represents the cultural landscape and landmarks of three centuries of our nation’s history. The Mosby Heritage Area encompasses parts of five counties, including all of Loudoun County.

## Plant and Wildlife Habitats

Plants and animals play an important role in nature’s lifecycle and its ecosystems. For wildlife habitats, large contiguous parcels of natural open space are preferable to more numerous but disconnected and smaller areas. The creation of a larger network helps ensure the viability of the habitat.



While many high-quality plant and animal habitats have already been lost or altered due to land development, the County still has several unique and natural habitat areas. The largest contiguous areas of forest and naturally vegetated land are on mountainsides, steep slopes, and along stream channels. These areas play a key role in preserving the abundance and diversity of the County's remaining plant and wildlife resources. The integrated approach to preserving natural, environmental, and heritage resources is intended to help prevent habitat fragmentation, while enhancing ecological connections with larger areas.



*Heron rookery adjacent to the Broad Run near Ashburn.*

The County strives to protect, preserve, and create large-scale plant and wildlife habitats that overlap with other important resources and resource systems. The County will also protect rare, threatened, and endangered plant and animal species habitats in accordance with the federal Endangered Species Act. Action steps call for development applications that have the likelihood of one or more natural heritage resources to conduct a species assessment and develop a plan for impact avoidance in cases where the presence of the species is identified.

**Natural Heritage Resources** include: rare, threatened, and endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and other natural features of the County.

## Complementary Elements

Complementary elements consist of elements that are not directly a part of the land-based environmental and heritage resources but complement them. They include air quality, aural environment, and lighting and the night sky.

### Air Quality

In order to meet the federal goals of the Clean Air Act, the County offers an integrated land use approach that protects air quality by planning development in locations that are close to major transportation facilities and transit nodes, limiting gross densities in the Rural and Transition Policy Areas, and promoting and implementing alternative modes of transportation. Loudoun is included in the United States Environmental Protection Agency's (EPA) Washington, D.C. nonattainment area for meeting national standards for air contaminants. The County has an active role on the Metropolitan Washington Air Quality Committee (MWAQC) and the National Capital Region Transportation Planning Board (TPB).

### Aural Environment

Efforts to protect existing and future residents from increased levels of environmental noise have focused primarily on airport noise surrounding Washington Dulles International Airport (IAD) and Leesburg Executive Airport (see Airport Noise Impact Area Map). The Airport Impact Overlay District (AIOD) of the Zoning Ordinance imposes development restrictions within specified areas to protect existing and future residents as well as maintains the economic viability of these important transportation and economic development resources. Future Airport Noise Corridor studies could lead to updates to the noise contours surrounding IAD.

The County also has policies to protect noise-sensitive uses adjacent to major roadways, calling for appropriate noise mitigation measures to be incorporated into the overall project design when Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Levels are approached or exceeded.

### Lighting and the Night Sky

The County's night sky is an asset that should be protected from excessive and improper lighting. The County recognizes the need for artificial lighting for the purposes of public safety and visibility, but such lighting should be designed and programmed to minimize light pollution. Action steps call for updating lighting standards that promote quality and energy-efficient lighting, preserve the natural beauty of the night sky, and minimize impacts on people, plants, and wildlife.

## **Sustainability**

Sustainability seeks to achieve economic development, social equity, and environmental protection in a balanced manner. Sustainability is commonly defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Over the last several decades, Loudoun County has integrated sustainability into the community fabric to foster a high quality of life. The County will continue its leadership and infuse a sense of responsibility among all sectors of the community to take a more active role in sustainability.

Sustainable development calls for practices that are cost-effective, enhance human health and well-being, and protect and restore the environment. The County has developed and implemented the following programs and plans that demonstrate a commitment to a more sustainable community:

- [\*Clean Waters Initiative\*](#), which hosts educational and partner projects, from floating wetlands, to native tree planting, to rain gardens, to pasture and crop management, to stream protection.
- [\*The Loudoun County Energy Efficiency and Conservation Program\*](#), which provides leadership, guidance, education, and technical expertise to reduce energy consumption, improve energy efficiency, reduce energy costs, and facilitate energy conservation in County facilities.
- [\*Energy Strategy 2009\*](#), a 30-year road map of energy strategies for the Loudoun County government and community.

- [Environmental Policy](#), which provides outreach and guidance regarding pollution reductions set by the Total Maximum Daily Load (TMDL), which was established by the EPA for the Chesapeake Bay. Monitors environmental legislation and regulatory activity that may have an impact on Loudoun County operations and residents, including federal regulations such as the EPA’s Chesapeake Bay TMDL.
- [Stormwater Management Program](#), which addresses the design, development, improvement, operation, inspection, maintenance, and oversight of the stormwater management system.
- [Water and Wastewater Program, established through Water and Wastewater Needs Assessment Implementation Plan](#), is a program that recognizes the need for a detailed, systematic approach to solve existing and potential future water and wastewater problems in the county, including assistance and support for communities experiencing issues with deficient or absent water and/or wastewater systems.

Energy use is the major human cause of greenhouse gases. The electricity sector is currently the largest emitter of greenhouse gases, followed by the transportation sector; industry, commercial, and residential fuel use; and agriculture. In 2007, the *County Energy Strategy* (CES) concluded that if Loudoun County remained on a business-as-usual track with its countywide growth – while accounting for some expected improvements in the efficiency of both existing structures and new construction – then by 2040 the County would require 46 percent more energy to manage the expected growth. Over the same period, total greenhouse gas emissions would increase by 50 percent.

The County monitors inefficient energy sources at government facilities and eventually plans to shift to an alternative source of energy. As an example, Loudoun County converted Purcellville Library’s oil Heating, Ventilation, and Air Conditioning system to electric and propane.

The County enforces the 2012 International Energy Conservation Code (IECC), the most current model code establishing the minimum design and construction requirements for energy efficiency. County policies have a goal of constructing County facilities to Leadership in Energy and Environmental Design (LEED) Silver, or equivalent standards, where it makes sense to do so. Green building rating systems provide a consistent metric for measuring site development and building performance. Also, rating systems raise awareness of the environmental impacts of site development and buildings and help determine measures to minimize those impacts.

Loudoun County is a member of the Metropolitan Washington Council of Governments (MWCOG). MWCOG focuses on the following environmental planning areas: water resources, air quality, climate and energy, recycling and solid waste, and agriculture and forestry. Loudoun County assists in advancing the goals laid out in MWCOG’s [Region Forward](#) for clean water, air, and land, and a more sustainable region.

The County is committed to policies, strategies, and actions that protect natural, environmental, and heritage resources and integrate the concepts of sustainability into greater community planning and development goals. As the County continues to grow, so will the opportunities and challenges related to preservation and conservation of natural, environmental, and heritage resources. A

proactive approach to water quality could help to avoid costly and time-consuming processes to restore water quality as part of TMDL Action Plans. Through watershed management plans, the County has the opportunity to identify areas where management practices will most effectively enhance water quality. The County also has the opportunity to document efforts to promote sustainability, environmental stewardship, and protect the environment. The County should continue to support and build upon work that has already begun and consider the development of a sustainability plan or an annual report highlighting work that is being done. The Board can use this report to identify future goals. Essential to the preservation of heritage resources and cultural landscapes is proactive survey and evaluation of these resources as provided in the HPP. The following Policies, Strategies, and Actions reflect these concepts and more, balancing the environmental, social, and economic factors that will shape the County for future generations.

## **Policies, Strategies, and Actions**

Unless otherwise specified, the following Policies, Strategies, and Actions apply Countywide.

### **Natural, Environmental, and Heritage Resources**

*(See also Chapter 6, Fiscal Management and Public Infrastructure)*

**NEHR Policy I: Provide protection for natural, environmental, and heritage resources.**

#### Strategy

- 1.1. Support mechanisms to further the goals of conservation, preservation, restoration, recapture, and education to protect the health, safety, and welfare of Loudoun residents.

#### Actions

- A. Maintain a map of natural, environmental, and heritage resources as part of an integrated system and contiguous network of natural and passive open spaces and active recreational sites.
- B. Identify those properties that are not conducive to development due to sensitive environmental, cultural, and historical characteristics, and promote their preservation through various public and private programs (such as the Open Space Preservation Program, conservation easements, etc.).
- C. Adopt zoning regulations and development standards that implement a process identifying natural, environmental, and heritage resources worthy of preservation and developing around those resources as part of all land development.

D. Update the *Facilities Standards Manual*, the *Land Subdivision and Development Ordinance*, and other development standards to implement the natural, environmental, and heritage policies in this Plan.

Land Development applications should use the following design process to identify buildable areas:

E. Should the Board of Supervisors consider adopting a Transfer of Development Rights (TDR) program in the future, a thorough evaluation of the countywide impact on sending and receiving areas for density transfers will be conducted and, if acceptable to the Board of Supervisors, such additional policies will be added to the Comprehensive Plan and considered for implementation with a future TDR ordinance.

1. Identifying the environmental, natural, and heritage features of a site to be preserved;
2. Locating buildings on the unconstrained land; and
3. Locating street, utility, and trail on the development plan.
4. Locating lot lines.

F. Use a design process that conserves natural, environmental, and heritage resources and incorporates any such features into the site design; Use Value Assessment Program; AFDs; public-private partnerships; and other regulatory and incentive-based efforts (e.g., a potential TDR program) for the preservation, conservation, restoration, and management of the County's natural, environmental, and heritage resources. Explore and implement additional incentive-based approaches.

Transfer of Development Rights (TDR) and Conservation Easements are tools available to the County and public and private entities to protect and preserve open space, farms, and natural, environmental, and heritage resources in perpetuity, allowing landowners to retain ownership of their property, while maximizing the economic value of the land.

G. Retain conservation easements as a tool to protect open space areas in subdivisions and to ensure long-term maintenance and protection of the area. Such easements will be recorded as part of the subdivision process and include public access where appropriate.

H. Direct public investment and resources toward completing a natural, environmental, and heritage resource network and recapturing natural, environmental, and heritage resources in developed areas.

I. Require development proposals that impact one or more natural, environmental, and heritage resources to offset impacts by enhancing and/or recapturing natural, environmental, and heritage resources elsewhere onsite.

J. Require development proposals to create links to adjacent natural, environmental, and heritage resources to create an integrated network and prevent habitat fragmentation.

Strategy

- 1.2. Promote private, state, and federal conservation programs and their allocated resources to advance conservation programs within the County through public and private means such as grants, voluntary easements, and dedications.

Action

- A. Study and, if feasible, aid in the establishment of a public-private conservation partnership to facilitate communication, grants, easements, education, and partnership opportunities to conserve and protect natural, environmental, and heritage resources.

Strategy

- 1.3. Act as a leader and educator in environmental design to achieve and sustain a high-quality built environment.

Action

- A. Provide incentives for innovative design and support collaborative public-private-community partnerships for program implementation including provisions for awards of certificates of excellence in environmental design for the public and private sectors.

Strategy

- 1.4 Link natural, environmental, and heritage resources to create opportunities for open space corridors for the enjoyment of current and future generations.

Action

- A. Prioritize protection of the following priority open space areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development design, and other means:
  - i. Key natural, environmental, and heritage resource features not already protected from development by conservation easements or regulation,
  - ii. Rural areas immediately adjacent to the Towns, JLMAs, and Rural Historic Villages that help form greenbelts and gateway buffers,
  - iii. Areas adjacent to the Potomac, Catoctin, Bull Run, Goose Creek, and Broad Run floodplains to protect water quality,
  - iv. Properties on the State or National Registers of Historic Places and within local historic districts,
  - v. Corridors and sites that the County has identified for trails and parks and additions to existing parks provided they permit the construction of such facilities, and
  - vi. Other areas of local natural, historic, or cultural significance including designated scenic rivers and roads.

## River and Stream Corridor Resources

RSCR Policy 2: The County will protect natural ecosystems, restore water quality, serve Loudoun's population, and support the built environment through healthy surface and groundwater resources.

### Strategy

- 2.1. Establish and maintain a healthy river and stream corridor ecosystem that meets desired water quality standards, protecting from the damages of soil erosion and flooding while promoting biological diversity.

### Actions

- A. Amend zoning regulations and development standards, including but not limited to the Floodplain Overlay District (FOD) and Scenic Creek Valley Buffer sections, to address the objectives of the RSCR policies. Zoning regulations and development standards will establish performance standards and best management practice (BMP) requirements to ensure the health and biological integrity of the river and stream corridors and minimize adverse impacts.
- B. Develop and implement a watershed management plan for each watershed, establishing development guidelines and performance standards to protect water quality.
- C. Establish appropriate regulations for Catoclin Mountain, Short Hill Mountain, and the Blue Ridge Mountains to limit diversions of water from the Catoclin and Goose Creek headwaters and prevent stream pollution.
- D. Maintain a working relationship with the Federal Insurance and Mitigation Administration of the Federal Emergency Management Agency (FEMA) for continued participation in the National Flood Insurance Program (NFIP). The County will also maintain its current status as a Cooperating Technical Partner in FEMA's Flood Map Modernization program.
- E. Work with the incorporated towns, Loudoun Water, and other organizations and agencies to establish overall water quality goals and specific standards for individual streams and river and stream corridors, consistent with County RSCR objectives and policies.
- F. Coordinate with the Metropolitan Washington Airport Authority regarding water quality protection within the Broad Run watershed.
- G. Promote and encourage community programs, such as the "Adopt-A-Stream" program, in order to keep river and stream corridors free of litter and debris and as a means of promoting public awareness of the County's river and stream corridors.

- H. Support the interstate 2014 Chesapeake Bay Watershed Agreement—a watershed partnership among Virginia, Maryland, West Virginia, Delaware, New York, Pennsylvania, the District of Columbia and the United States EPA—and continue supporting Virginia’s action towards meeting the Chesapeake Bay TMDL and WIP.
- I. Support the mitigation of stream and wetland impacts and the creation of stream and wetland mitigation banks within Loudoun County to improve water quality in Loudoun.
- J. Maintain the County’s Predictive Wetland Model and require submittal of digital wetland delineations in conjunction with land development applications in order to develop a reliable wetlands inventory and map of wetland areas.

Strategy

- 2.2. Establish River and Stream Corridor Resource (RSCR) buffers to promote river and stream health (streambank/streambed stability, temperature moderation, nutrient removal, sediment removal, flood control, and aquatic food and habitat).

Actions

- A. Amend zoning regulations and development standards to establish a minimum 100-foot stream buffer to protect rivers and streams when floodplains and adjacent steep slopes do not extend beyond either bank by 100 feet.
- B. Amend zoning regulations and development standards to establish a 50-foot management buffer as part of the RSCR surrounding floodplains and adjacent steep slopes. Specific criteria for allowable reductions in the 50-foot management buffer should be included to ensure that reductions do not adversely impact the other elements of the RSCR. The RSCR 50-foot management buffer will not be added to the 100-foot minimum stream buffer.

*Examples of measures to help mitigate a reduction in the 50-foot management buffer:*

- i. Reforestation of open areas adjacent to the stream and floodplain;*
- ii. Increasing Tree Conservation Areas adjacent to the floodplain (especially when the floodplain is narrow);*
- iii. Buffering streams and wetlands outside of the RSCR; and*
- iv. Enhanced stormwater and erosion and sediment control measures.*



- C. Develop and use incentives to encourage property-owners to establish and maintain a 100-foot minimum riparian stream buffer.

#### **Permitted Uses in the RSCR**

Permitted uses within the RSCR are intended to support or enhance the biological integrity and health of the river and stream corridor. These uses are intended to have minimal adverse effects on natural, environmental, and heritage resources. Development of such uses requires mitigating impacts while complementing the hydrologic processes of the river and stream corridors including flood protection and water quality. New uses should be limited to:

- a. Road crossings, rail crossings, bridges, and drive-way crossings
- b. Public water and sewer
- c. Local and regional stormwater management facilities within the minor floodplain river and stream corridor resource only (subject to BMP requirements)
- d. Public lakes and ponds (subject to BMP requirements)
- e. Public water supply reservoirs
- f. Historic and archaeological sites
- g. Paths and trails – including footpaths, biking or hiking paths, and horse trails (of a permeable material only)
- h. Passive recreation – limited to hiking, biking, horseback riding, picnicking, camping, climbing, hunting, fishing, and wildlife viewing
- i. Active recreation within the minor floodplain river and stream corridor resource only
- j. Agricultural activities, but not structures – including crop planting and harvesting and grazing (subject to appropriate BMP requirements)
- k. Silviculture – as required to care for forests and not commercial forestry (limited to forest preservation and tree planting, limited tree clearing and clearing of invasive species, tree trimming and pruning, and removal of individual trees (subject to appropriate BMP practice requirements)
- l. Planting native vegetation (subject to appropriate BMP requirements)
- m. Conservation – including stream restoration projects, wetland mitigation banks, facilities and activities; Adopt-A-Stream programs; scientific, nature, and archaeological studies; and educational programs
- n. Raised boardwalks

#### Strategy

- 2.3 Protect and improve stream quality and watershed health by decreasing the amount of stormwater runoff and pollutants from reaching local waters.

#### Actions

- A. Develop appropriate standards and regulations to protect natural streams from the harmful effects of increased stormwater volume, velocity, and pollutant loads resulting from development.
- B. Encourage stormwater BMPs on-site or as close to the area being treated as possible to prevent increased nutrient and sediment runoff.

- C. Establish incentives and/or a funding program for reforestation, SWM/BMP projects, and SWM/BMP retrofits.
- D. Support the retrofitting of older stormwater systems and the rehabilitation of degraded areas to enhance pollution removal capabilities and create open space amenities.
- E. Retain a site's natural hydrology and drainage patterns wherever possible when designing stormwater management systems; otherwise, promote the use of low-impact development to replicate natural hydrologic patterns and alleviate the strain on centralized systems.
- F. Support and incentivize reforestation for degraded forested areas in upper stream reaches that do not include Major Floodplain and promote natural regeneration within the limits of the Major Floodplain to mitigate the loss of native canopy coverage as a result of construction.
- G. Develop and maintain standards for activities that propose pollution sources such as the storing and dispensing of fossil fuels, chemical storage, and sale or transfer of potential contaminants.

### Strategy

- 2.4. Protect and enhance impaired streams and their tributaries to improve water quality and provide ecological benefits while also providing opportunities for passive recreation.

### Actions

- A. Encourage the implementation of enhanced pollutant control measures and watershed management strategies such as: downspout disconnection; tree planting/reforestation, especially within riparian areas; storm drain marking; stream restoration; wetland creation; adding BMPs; enhanced stormwater management ponds; enhanced pollution/erosion control measures; coordination and outreach with the Virginia Department of Transportation (VDOT) and owners associations on use of sand and anti-ice materials in snow removal/road clearing operations; and stormwater pond water quality enhancements.
- B. Actively participate in regional water quality initiatives to protect and improve water quality.
- C. Comply with the Virginia General Permit for stormwater discharges from small Municipal Separate Storm Sewer Systems (MS4 General Permit).
- D. Prepare and implement TMDL Action Plans, as necessary to meet TMDL requirements. The Action Plans, designed to improve the County's surface water quality may include working with other entities, such as the Loudoun Soil and Water Conservation District (LSWCD) and Virginia Cooperative Extension-Loudoun (VCE-Loudoun).

- E. Collaborate with the Department of Environmental Quality, the Goose Creek Scenic River Advisory Committee, and other stakeholder groups on any pollution impairment issues within streams and support volunteer water quality monitoring efforts and coordination of these efforts with federal, state, and local water quality data collection.

## Surface Water Resources

### Strategy

- 2.5. Protect rivers and public drinking water reservoirs to ensure a clean, safe, and adequate supply of drinking water.

### Actions

- A. Protect public water supply reservoirs, Scenic Rivers, the Potomac River, and the Bull Run by establishing a 300-foot no-build buffer or the other elements of the RSCR buffer, whichever is greater. Areas outside of the no-build buffer are priority open space areas for the creation of a greenbelt. The greenbelt could be created through various mechanisms such as land donations, conservation easements, and other land conservation mechanisms. Specifically those areas outside of the no-build buffer identified as the 200-foot transitional buffer along the Bull Run and the 1,000-foot voluntary open space area along the Goose Creek, Goose Creek Reservoir, and Beaverdam Reservoir will be designated as priority open space areas.
- B. Protect lands that are critical to the quality of key water supplies through easement, fee simple acquisition, regulatory measures, or other sufficient measures. Restore filtration and erosion control functions through the re-naturalization and native revegetation of these areas.
- C. Develop and implement a watershed overlay district for all public water supply reservoir watersheds, establishing more stringent development guidelines and performance standards to protect water quality.
- D. Develop and implement a Potomac River shoreline management plan and seek to coordinate this effort with adjacent jurisdictions (local, state, and regional organizations, advisory boards, and citizen groups). This plan should include:
  - i. The boundaries of the study area,
  - ii. A comprehensive natural resources inventory,
  - iii. Existing and proposed private/public water access entry points,
  - iv. Policy recommendations for river corridor management and protection,
  - v. A process for integrating the participating groups, and
  - vi. A plan for acquiring and managing open space corridors along the Potomac River.
- E. Establish appropriate standards and land uses in consultation with Loudoun Water and/or incorporated towns to protect drinking water supplies.

- F. Develop a community-based Source Water Protection Plan in cooperation with Loudoun Water and other agencies and organizations.

## Groundwater Resources

### Strategy

- 2.6. Preserve and protect groundwater quantity and quality.

### Actions

- A. Develop and implement a comprehensive groundwater protection strategy to ensure adequate and sustainable water supply.
- B. Develop and implement a comprehensive pollution management program to monitor and protect groundwater resources.
- C. Local wellhead protection plans will be taken into consideration during review of development applications to maintain drinking water quality and protect groundwater from contamination.
- D. Limit the installation of additional wells and limit the number of additional households and irrigation systems that are dependent on wells through water conservation efforts and through the use of communal and/or central water systems where feasible and as approved by Loudoun Water.
- E. Ensure the location, depth, and rate of extraction of individual wells do not impact the quality and quantity of municipal wells.
- F. Assess the recharge and consumption rates for groundwater in each watershed by analyzing data from groundwater level monitoring and stream flow measurements. If negative impacts are detected, the information will be presented to the Board of Supervisors for appropriate action.
- G. Develop standards for uses that consume and/or require the usage of large quantities of water in those areas that could affect neighboring wells and aquifers.
- H. Provide education to school children and homeowners on the use and consumption of groundwater for areas of the County that are not connected to the central water supply.
- I. Study best practices/guidelines to reduce impervious surfaces and minimize increases in post-development runoff peak rate, frequency, volume.

#### **Additional Notes:**

- *The RSCR performance standards, BMP requirements, and list of permitted uses will apply to the no-build buffer, except adjacent to existing or planned drinking water reservoirs where stormwater management facilities are not permitted.*
- *The limits of the 300-foot no-build buffer for reservoirs is measured from their projected high water mark where expansion is proposed.*

## Soils and Geologic Resources

SGR Policy 3: Preserve and protect the County's soils, unique geologic characteristics, farmland, steep slopes, mountainsides, and ridgelines recognizing their sensitivity to land disturbance and development as well as their contribution to healthy ecosystems and the quality of life valued by residents and visitors.

### Limestone Geology Areas

#### Strategy

- 3.1. Protect limestone geology areas susceptible to sinkholes, cavity collapse, ground slippage, pollution, and other hazards.

#### Actions

- A. Maintain performance standards for lands within areas underlain by limestone — including minimum setback distances from karst features (e.g., sinkholes and rock outcrops) —to ensure structural stability and prevent adverse impacts to environmental and public health.
- B. Limit density and intensity of development within areas underlain by limestone, especially on sites proximate to karst features.
- C. Require communal water and wastewater systems built to Loudoun Water standards for new development in areas underlain by limestone.
- D. In areas of the limestone overlay district and/or other areas where subsurface karst geology exists, require potable water supply systems that can be demonstrated to treat groundwater to a surface water level of treatment standard, following Loudoun Water's Engineering Standards Manual, as a condition of approval.
- E. Identify pollution sources and establish appropriate standards for reducing pollution in areas underlain by limestone.

### Prime Agricultural Soils

#### Strategy

- 3.2. Preserve and protect prime farmland and agricultural soils, recognizing their importance to the overall economic health of the rural economy.

#### Action

- A. Develop a public education program that will focus on communicating advantages associated with private protection of Prime Agricultural Soils.
- B. Encourage the retention and conservation of prime agricultural soils within open space areas.
- C. The County will update, maintain, and make available the Countywide Prime

## Agricultural Soils Map.

**Steep Slopes, Moderately Steep Slopes and Mountainside Areas**Strategy

- 3.3. Protect steep slopes, ridgelines, and mountainside areas against destabilization, erosion, building and/or road failure, downstream flooding, and other hazards and to maintain the scenic and rural nature of these areas.

Actions

- A. Manage and regulate development in mountainside areas using performance standards and regulations to minimize negative environmental impacts; minimize land disturbance; protect the ridgelines; maintain woodlands, plant, and wildlife habitats; and preserve other natural features.
- B. Prohibit land disturbance on naturally occurring very steep slopes (greater than 25 percent grade and/or soil slope class of E), with limited exceptions such as access easements to existing lots where no other access is possible. Agricultural or silvicultural activities, excluding structures, may be allowed provided that a County approved Farm Management Plan or Forest Management Plan, whichever is applicable, is implemented. Apply performance standards to protect soils, vegetation, and other environmental features when roads are permitted or allowed by special exception.
- C. Apply performance standards to protect moderately steep slopes (15 to 25 percent grade and or soil slope class of D) to include BMPs and locational clearances for clearing and grading. Develop incentives to locate development outside of moderately steep areas. Limit clearing to only essential clearing that is necessary for home construction, road construction, and utility installation on moderately steep slopes.
- D. Preserve forests and native vegetation on very steep slopes.
- E. Protect ridgelines through updates to the Mountainside Development Overlay District, the development of a Ridgeline Protection Overlay District, and the prioritization of protecting such areas through open space easement acquisition.
- F. Require special exception approval for the subdivision of properties into three or more lots in Sensitive and Highly Sensitive Mountainside Areas.
- G. Seek the expansion of passive outdoor recreational opportunities in mountainside areas, including the development of public park sites and improving access to existing recreational facilities such as the Appalachian Trail.
- H. Review and amend zoning regulations and development standards to ensure consistency with the mountainside area policies.
- I. Establish performance standards for unavoidable development on questionable soils

as defined by the International Building Code.

## **Forests, Trees, and Vegetation**

FTV Policy 4: Preserve, protect, and manage Loudoun County’s forests and trees for current and future use and enjoyment, recognizing these resources provide many benefits, such as improving air and water quality; offering important habitat for birds, small mammals and other wildlife; providing buffers between communities; conserving energy; reducing wind speed and redirecting airflow; and reducing stormwater runoff and soil erosion.

### Strategy

- 4.1. Preserve, protect, and manage forest resources for their economic and environmental benefits.

### Actions

- A. Require applicants to submit a Tree Cover Inventory as part of all development applications and, where applicable, require applicants to submit a Tree Conservation Plan for designated Tree Conservation Areas; such Tree Conservation Plan should demonstrate a management strategy that ensures the long-term sustainability of these designated areas and address the removal and monitoring of invasive woody vegetation and insects.
- B. Incentivize and encourage the preservation of existing trees within required landscape buffer areas and for screening of uses.
- C. Require the removal of invasive plant species during the development process.
- D. Develop and adopt a Tree Preservation Ordinance.
- E. Inventory and map trees and native vegetative resources to be preserved or managed in accordance with County standards and create and maintain a database of these resources to include, but not be limited to, old growth forests, significant tree stands, specimen trees, heritage trees, and State or National Champion trees.
- F. Participate in community tree projects such as the Arbor Day Foundation’s Tree City USA Program.

### Strategy

- 4.2. Promote tree planting and preservation to reduce the heat island effect, manage stormwater run-off, and improve water quality, air quality, and wildlife habitat.

### Actions

- A. Prioritize the planting of native vegetation, specifically along those corridors that provide connections to other natural, environmental, and heritage resources.

- B. Develop Countywide goals and objectives for the creation, maintenance, and preservation of the County's tree canopy.

## Historic, Archaeologic, and Scenic Resources

HASR Policy 5: Loudoun County's distinctive cultural landscapes encompass scenic and heritage resources, including Scenic Rivers and Byways, historic buildings, archaeological sites, battlefields, and historic cemeteries. These resources are foundational elements of the County's changing landscape that together tell the story of the formation and settlement of the County. The County will protect and enhance these resources, recognizing them as relevant, character-defining elements of both the natural and built environments.

### Strategy

- 5.1. Preserve cultural and scenic character through conservation and preservation of designated heritage areas, battlefields, cemeteries, scenic corridors, Scenic Rivers, the Potomac River, significant geological features, archaeological sites, historic structures and their settings. Convey the benefit of these resources to the public through public education in collaboration with private landowners and preservation organizations.

### Actions

- A. Evaluate land development applications within the context of this Plan as well as those more specific policies contained in the *Heritage Preservation Plan*.
- B. Evaluate the *Heritage Preservation Plan* every five years and update if necessary.
- C. Require an archaeological and historic resources survey for all development applications. This survey must include a plan for recordation of identified resources and measures for preservation, mitigation, and adaptive reuse. The County will maintain a repository for artifacts recovered from required surveys; such artifacts will be used for research and public education purposes.
- D. The County will update its cultural resource inventory through the land development process and County-sponsored historic surveys.
- E. Evaluate the historic or archaeological value of inventoried resources based on criteria set forth in the Secretary of the Interior's Standards for Archaeology and Historic Preservation, which include historic context and site integrity. The County will evaluate resources for consideration for state and National Registers. Identify, through survey and community outreach, locally important historic and archaeological resources that meet criteria for listing on the County Heritage Register as outlined in the *Heritage Preservation Plan*.
- F. Identify, delineate, and map historic cemeteries, burial grounds, and graves to ensure



they are protected from destruction or neglect. Ensure that adequate buffers are provided around these sites to protect them during the development process.

- G. Identify African American and Native American cultural resources, document them in the County’s database of heritage resources, and create policies and programs that protect, preserve, and interpret these resources for the benefit of County residents.
- H. Maintain the County’s database by using the inventory of cultural resources as a dynamic body of data to be reevaluated as needed.
- I. Conduct a staff assessment to determine historic significance prior to issuing a demolition permit for a structure that is 50 years old or older.
- J. Work with local communities to protect and enhance the character of cultural landscapes and historically significant sites through the designation of County Historic and Cultural Conservation Districts.
- K. Preserve and protect significant cultural and scenic resources from development impacts by promoting private or public acquisition and/or conservation easements.
- L. Where consistent with the applicable provisions of the Virginia Code, applicants may proffer cash contributions to the County for the enhancement and/or improvement of historic features within Loudoun to fulfill the open space guidelines described in Chapter 6 if the historic feature is in the same planning subarea identified in the latest Capital Needs Assessment and the County agrees to accept such contribution.
- M. Prioritize the adaptive reuse of historic structures that are of local, regional, or national significance as the primary method of preserving the County’s diverse collection of historic architecture within the framework of sustainable development.
- N. Amend zoning regulations and development standards to ensure the viability of adaptive reuse, particularly in the County’s villages where the ability to reuse historic structures is vital to the historic character and vitality of these communities.
- O. Prepare and implement corridor management plans, including identifying and defining viewsheds for the County’s Scenic Rivers to protect their natural and scenic quality.
- P. Prohibit the diversion of Scenic Rivers under any circumstances.

*A viewshed analysis for a Scenic River typically involves looking at both the view from the resource itself as well as the view towards the resource.*

## Natural Heritage Resources

NHR Policy 6: Preserve, protect, and create a network of privately and publicly protected open space, favoring large contiguous areas rather than smaller disconnected areas; maintaining natural, environmental, and heritage resource assets; preventing habitat fragmentation; and reinforcing the unique character of the diverse communities in the County.

### Strategy

- 6.1. Conserve and protect natural heritage resources including rare, threatened, and endangered plant and animal species; species of greatest concern; exemplary natural communities, habitats, and ecosystems; and other natural features of the County.

### Actions

- A. Use open space requirements, passive recreation, nature preserves, incentives, and regulations to protect areas of natural biodiversity and rare, threatened, and endangered plant and animal species, and plant communities in keeping with the federal Endangered Species Act and to foster the implementation of the Virginia Wildlife Action Plan.
- B. Require development applications to identify Loudoun County's natural heritage resources through coordination with the Virginia Department of Conservation and Recreation (VDCR) – Division of Natural Heritage and the Virginia Department of Game and Inland Fisheries (VDGIF). For those development applications that have a likely presence of one or more natural heritage resource, the County will require the applicant to conduct relevant assessments. In cases where the presence of the species is identified, the County will require the applicant to develop and submit a plan for impact avoidance.
- C. Ensure that the study of natural heritage resources is conducted by qualified research organizations such as the VDCR and VDGIF, and develop implementation strategies for the preservation of identified natural heritage resources.

## Wildlife Habitats

### Strategy

- 6.2. Conserve and protect wildlife habitats, wildlife travel corridors, and access to streams and water sources through the preservation of natural resources such as native vegetation, forest cover, woodlands, floodplains, streams and stream corridors, wetlands, and undeveloped areas associated with steep slopes.

### Actions

- A. Require development proposals to create links to adjacent open space and natural resources to help prevent habitat fragmentation and foster biodiversity.

- B. Identify essential wildlife corridors and encourage protection of these areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development design, and other means.
- C. Ensure that new development, redevelopment, and infill development incorporates existing native vegetation and plantings of native vegetation into the landscape design.
- D. Encourage the preservation and plantings of native vegetation to protect pollinators, migrant birds, and other wildlife.
- E. Promote and support the establishment of public and private nature preserves throughout the County as part of the protection and enjoyment of natural, environmental, and heritage resources.

## Complementary Elements

**CE Policy 7: The County promotes healthy air and low levels of noise and light pollution as essential elements for current and future residents.**

### Strategy

- 7.1. Preserve and protect air quality.

### Actions

- A. Comply with the requirements of the Federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan (SIP).
- B. Evaluate and implement methods to reduce emissions of airborne pollutants including particulates, greenhouse gases, ozone precursors, and other gases known to adversely affect human and environmental health.

### Strategy

- 7.2. Protect noise-sensitive uses.

### Actions

- A. Continue to support the Washington Dulles International and Leesburg Executive Airports by continued and complete prohibition of new residential and other noise-sensitive land uses from the areas located within the Ldn 65 or higher aircraft noise impact area for both airports and by allowing only non-noise-sensitive land uses within these contours.

*The Airport Noise Impact Area (ANIA) consists of three (3) components or aircraft noise impact areas:*

- (i) Ldn 65 or higher;*
- (ii) Ldn 60-65; and*
- (iii) Within one (1) mile of Ldn 60*

- B. Continue to work with the Metropolitan Washington Airports Authority to understand and minimize the effects of airport operations and routes on existing noise-sensitive areas within the Ldn 60-65 aircraft noise impact area for Washington Dulles International Airport and minimize residential and noise-sensitive development in noise sensitive areas.
- C. Prohibit residential encroachment into the areas designated as within the Ldn 65 or higher aircraft noise impact area to ensure that residential development will not create pressure for reductions in the intensity of service or prohibit the expansion of service at the airport.
- D. Continue to enforce and update with the most current information, as appropriate, the Airport Impact Overlay District included as part of the Loudoun County Zoning Ordinance.
- E. Consider the 2019 Washington Dulles International Noise Contour Map Update when reviewing land development applications surrounding the airport.
- F. Consider replacing the existing noise contours for Washington Dulles International Airport to reflect the noise contours in the 2019 Washington Dulles International Noise Contour Map Update. **[Implemented with CPAM-2021-0001, ZMAP-2021-0011, and ZOAM-2021-0002, Airport Impact Overlay District Update. However, the Ldn 65 or higher aircraft noise impact area is revised to exclude areas already approved for residential development through proffered rezoning.]**
- G. Require roadway noise studies for residential, institutional, or other noise sensitive uses adjacent to existing or proposed arterial and major collector roads to ensure that forecasted noise levels fall within acceptable levels, or can be abated to meet County standards (See also *Loudoun County 2019 Countywide Transportation Plan*, Chapter 7, Environmental and Heritage Resources).
- H. Allow approved residential rezonings that were located outside of the Ldn 65 or higher aircraft noise impact area at the time of approval, but projected to be within the Ldn 65 or higher noise impact area by the 2019 Washington Dulles International Noise Contour Map Update, to develop in accordance with their approval. Such rezonings will be designated within the Ldn 60-65 aircraft noise impact area.
- I. Require disclosure by property owners to prospective buyers of dwellings within the Airport Noise Impact Area (ANIA) that the property may be impacted by airport noise.

### Strategy

- 7.3. Prevent light pollution.

Actions

- A. Update lighting standards to achieve the following:
  - i. Promote the use of lighting for convenience and safety while minimizing light pollution;
  - ii. Promote a glare-free environment through proper lighting performance standards to improve visibility and enhance public safety;
  - iii. Promote appropriate lighting standards to conserve energy;
  - iv. Develop appropriate lighting standards to prohibit unnecessary and intrusive light trespass that detracts from the beauty and view of the night sky; and
  - v. Promote the International Dark-Sky Association’s Dark Sky standards to prevent light pollution.

**Sustainability**

**SUS Policy 8: Promote sustainability efforts throughout the County.**

Strategy

- 8.1. Support sustainability practices within the Loudoun County Government.

Actions

- A. Update and implement the County Energy Strategy (CES) to account for rapid growth in population and high energy demand uses, technological changes allowing improved energy storage, changing renewable energy markets, and the impacts of climate change.
- B. Continue to evaluate the energy demands of government buildings as well as transportation needs and develop plans for energy efficiency.
- C. Encourage benchmarking the energy use of existing and planned County buildings to establish a baseline for energy demand estimates.
- D. Use the data from benchmarking the energy use to set policy and regulations in the County.
- E. Whenever feasible, build County-constructed facilities to LEED Silver, or equivalent, standards.
- F. Continue to evaluate all sustainability efforts and improve efforts as new options and technologies become available.
- G. Continue to monitor the efforts of MWCOG.
- H. Support Loudoun Water in the expansion of the reclaimed water network.

- I. Incorporate natural, environmental, and heritage resources and BMPs into County Energy Strategy.
- J. Prioritize government purchase and use of goods and services that have reduced impacts to human and environmental health.
- K. Prioritize the use of Loudoun farm products in government purchase of food.
- L. Develop a Sustainability Plan for the County that provides the framework to balance economic development, social well-being, and environmental health.
- M. Consider providing electric car charging stations at newly constructed County-constructed facilities.

Strategy

8.2. Support energy efficient practices for all in Loudoun County.

Actions

- A. Evaluate the energy demands of residential and non-residential buildings, including data centers as well as transportation needs and develop plans for energy efficiency.
- B. Research and support opportunities for micro-grid energy and district energy systems.
- C. Encourage the use of Commercial Property Assessed Clean Energy (C-PACE) and research and support residential PACE program.
- D. Prioritize public investment in energy efficient, clean products and infrastructure.

Strategy

8.3. Support sustainable economic practices within Loudoun County to strengthen economic growth and innovation.

Actions

- A. Create partnerships with universities and private sector companies to foster growth of a sustainable economy that supports workers and students in the advanced technology and science industries.
- B. Promote the production and access to sustainable, healthy local food.
- C. Support and expand community gardens throughout the County.

**SUS Policy 9: Encourage sustainable development practices, including long-term water conservation, green building principles, sustainable site design, renewable energy, preservation and adaptive re-use of historic structures, and integrated**

## energy management planning.

### Strategy

- 9.1. Promote water conservation through innovative, cost-effective reuse systems, domestic water saving devices, and low impact development techniques, which integrate hydrologically functional designs with methods for preventing pollution and educational programs.

### Actions

- A. Educate and encourage the harvesting of rainwater for non-potable use, such as landscape irrigation.
- B. Establish incentives for sustainable development.

### Strategy

- 9.2. Promote the use of salvaged, recycled, or locally produced materials whenever possible.

### Strategy

- 9.3. Evaluate the establishment of Eco-districts within the County.

### Strategy

- 9.4. Promote green building standards and green building.

### Strategy

- 9.5. Support renewable energy.

### Actions

- A. Adopt solar zoning and permitting best practices for accessory use solar development.
- B. Become certified as a “solar-ready” community under the Department of Energy’s SolSmart program.
- C. Support solar farms with locational criteria to be identified.

## **Reference Maps**

Natural and Environmental Resources (Map #2018-141)

River and Stream Corridor Resources (Map #2018-142)

Watersheds (Map #2018-143)

Historic Districts (Map #2018-144)

Airport Noise Impact Area (Map #2023-023)

African American Historic Communities (Map #2018-201)

Impaired Streams (Map #2018-203)

Limestone Overlay District (Map #2018-204)

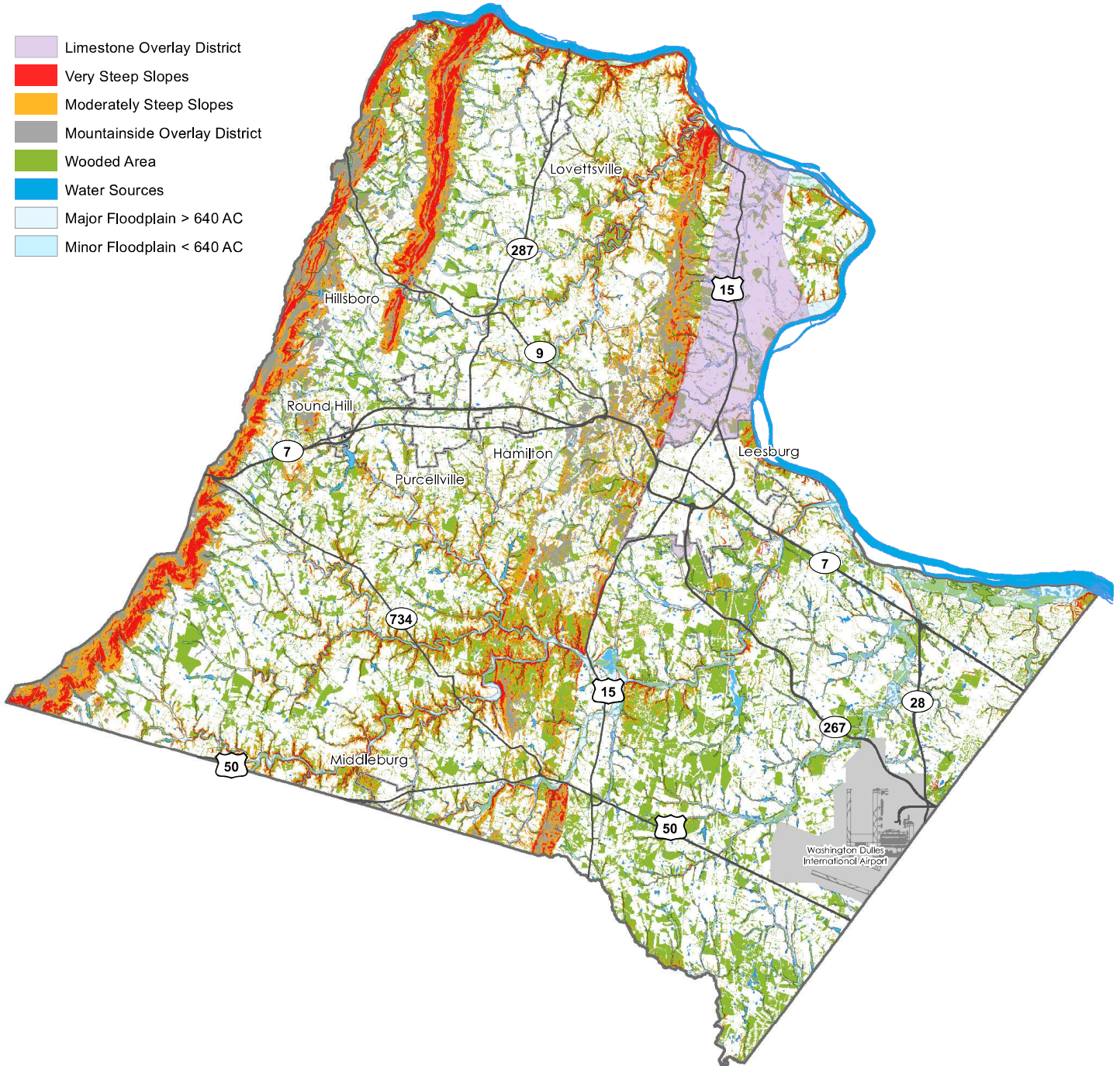
Countywide Prime Agricultural Soils Map (Map #2019-262)



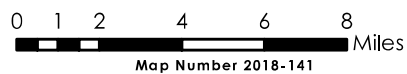
Loudoun County  
**Natural & Environmental Resources**  
 2019 General Plan



- Limestone Overlay District
- Very Steep Slopes
- Moderately Steep Slopes
- Mountainside Overlay District
- Wooded Area
- Water Sources
- Major Floodplain > 640 AC
- Minor Floodplain < 640 AC



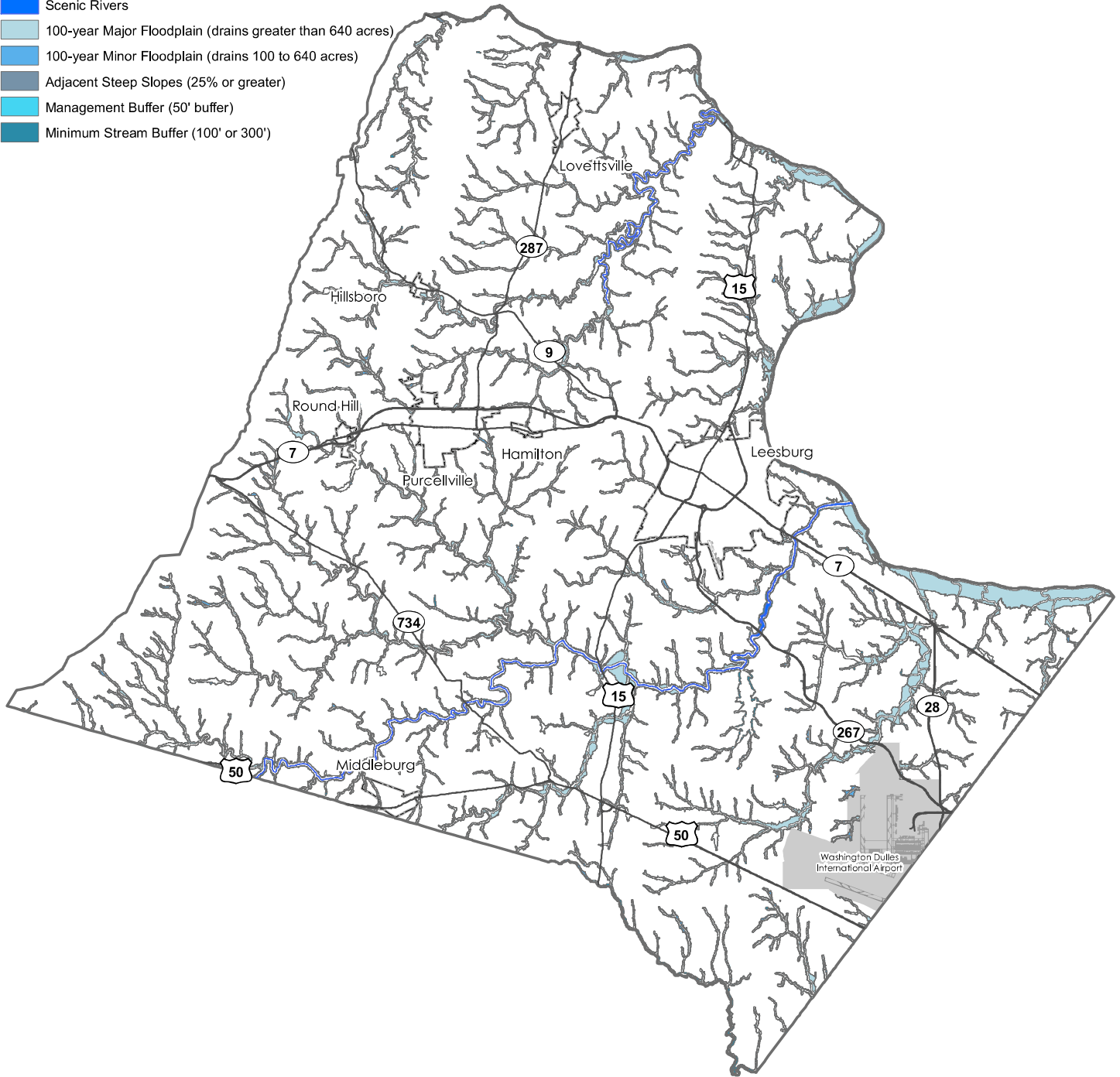
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



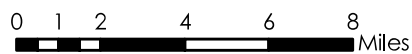
Loudoun County  
**River and Stream  
 Corridor Resources**  
 2019 General Plan



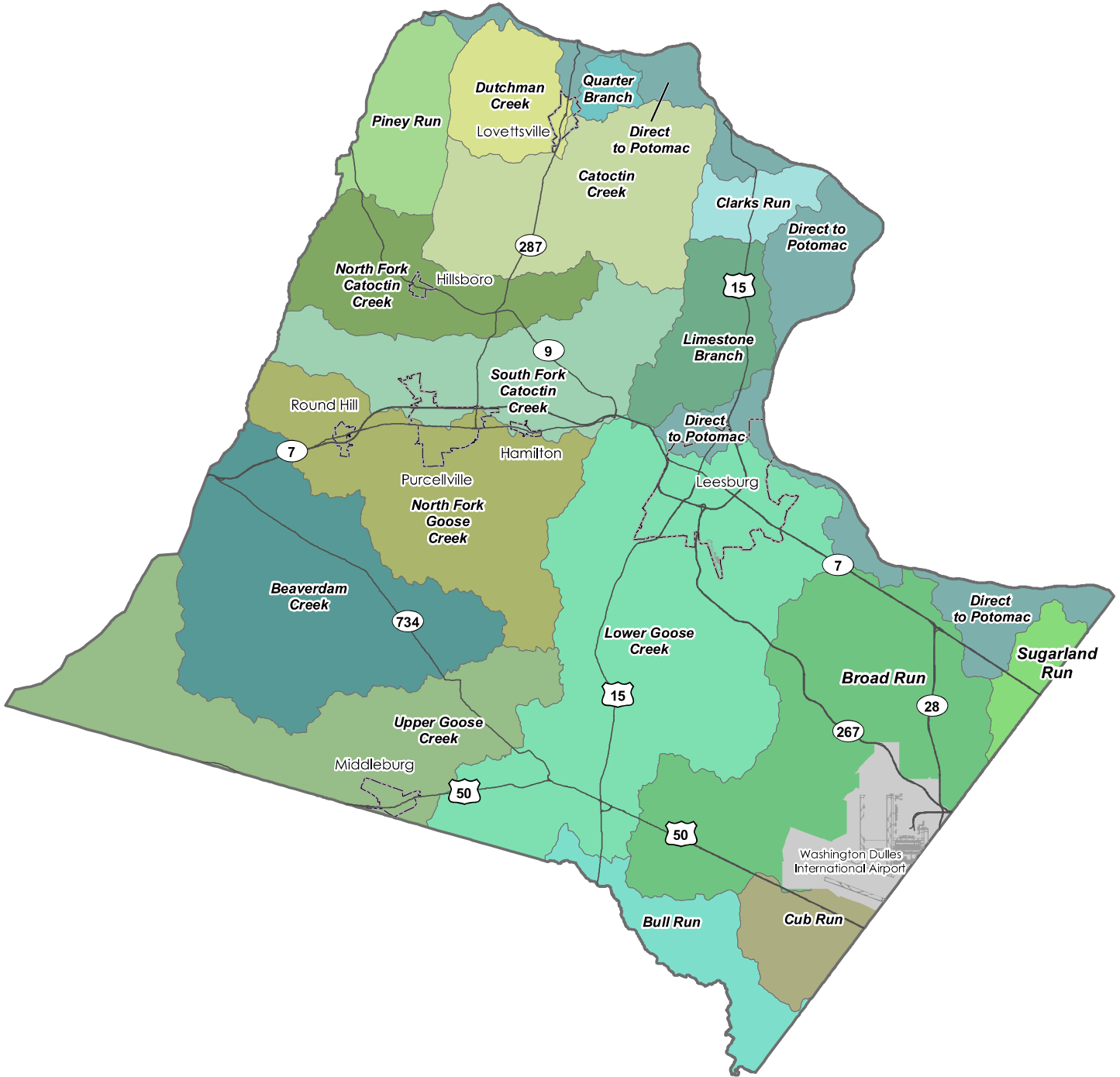
- Scenic Rivers
- 100-year Major Floodplain (drains greater than 640 acres)
- 100-year Minor Floodplain (drains 100 to 640 acres)
- Adjacent Steep Slopes (25% or greater)
- Management Buffer (50' buffer)
- Minimum Stream Buffer (100' or 300')



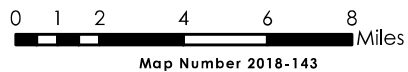
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



Map Number 2018-142



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.

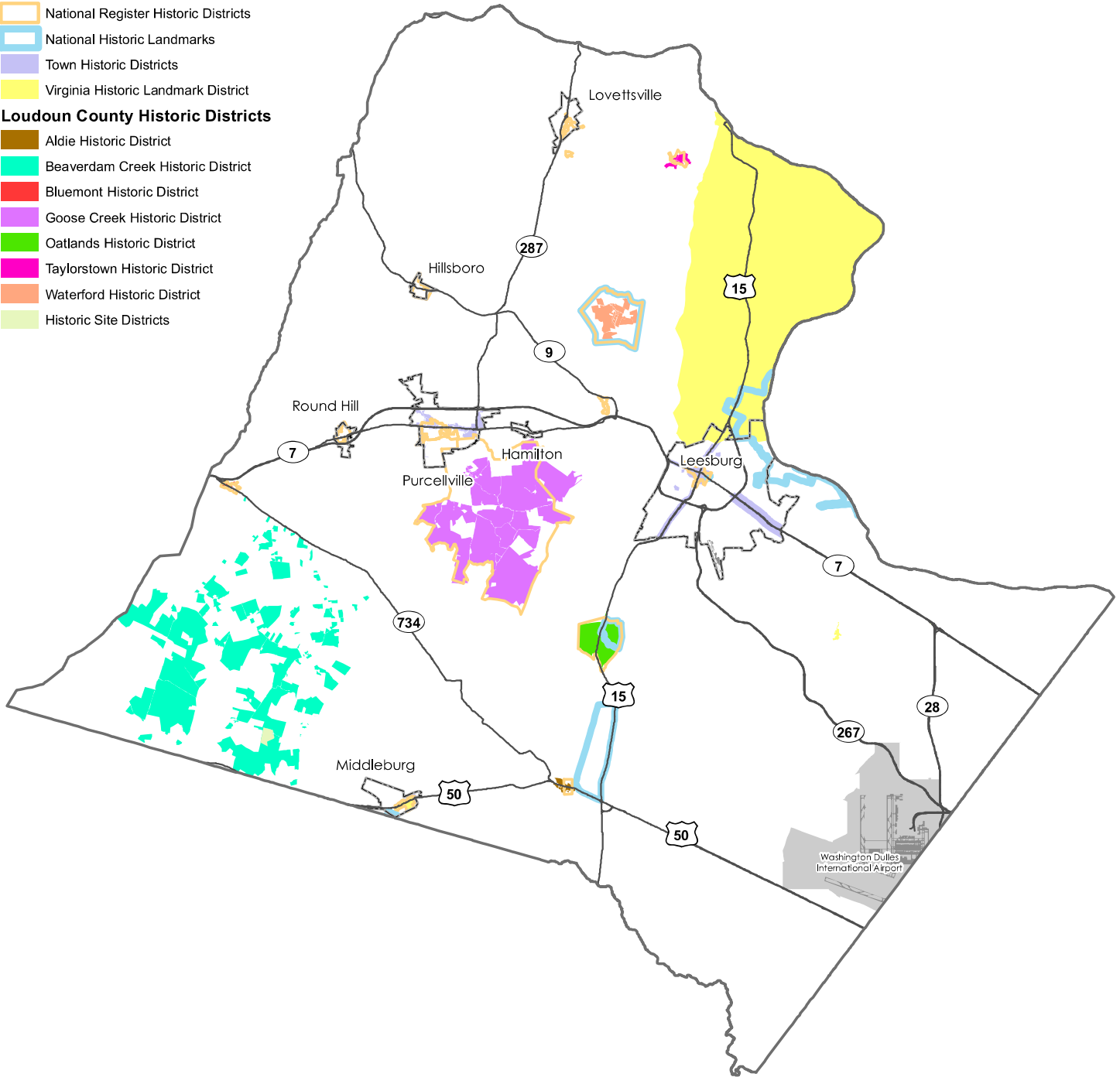


Loudoun County  
**Historic Districts**

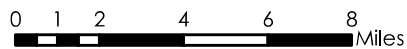
2019 General Plan



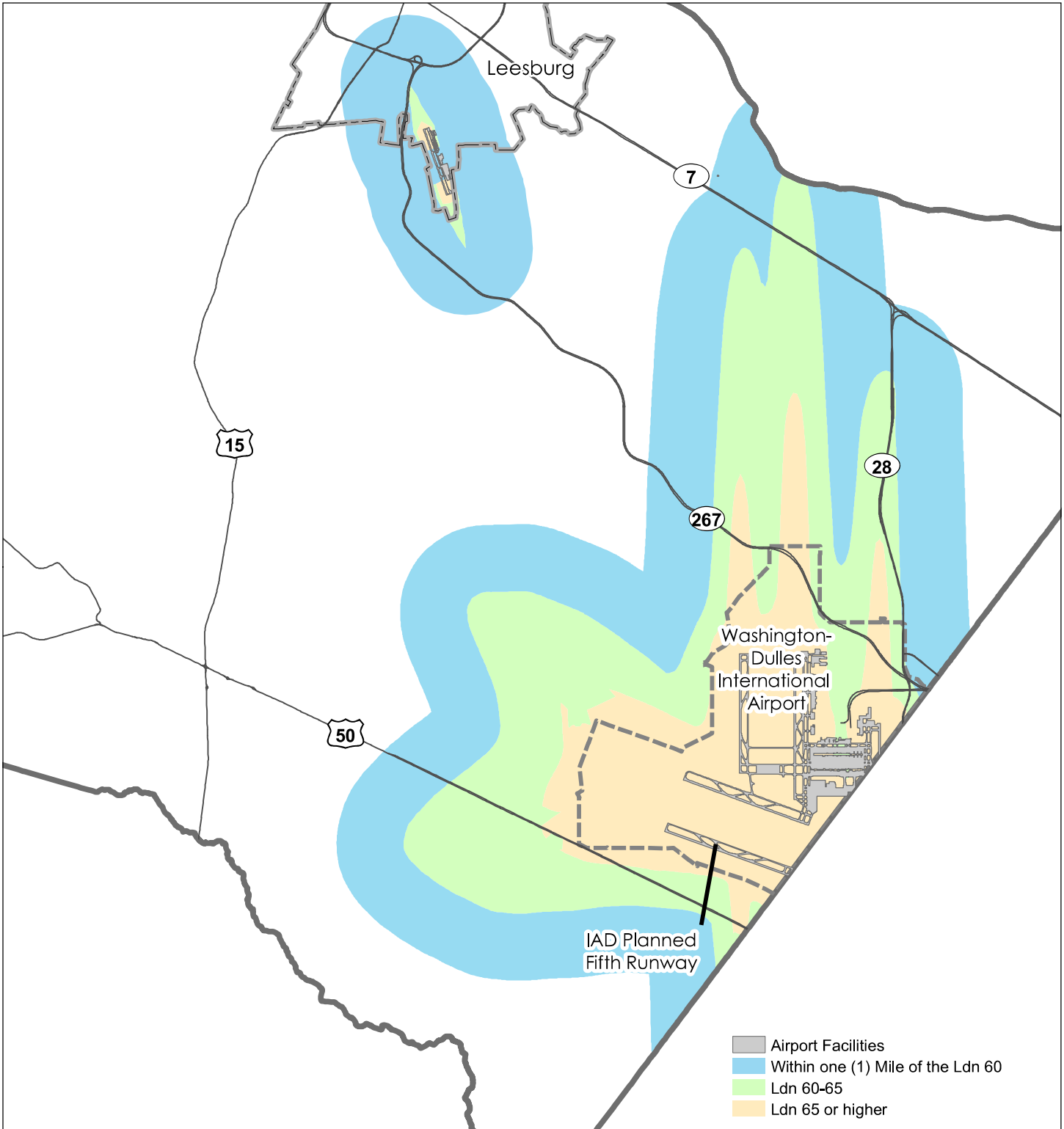
- National Register Historic Districts
- National Historic Landmarks
- Town Historic Districts
- Virginia Historic Landmark District
- Loudoun County Historic Districts**
- Aldie Historic District
- Beaverdam Creek Historic District
- Bluemont Historic District
- Goose Creek Historic District
- Oatlands Historic District
- Taylorstown Historic District
- Waterford Historic District
- Historic Site Districts



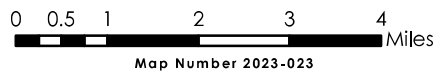
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



Map Number 2018-144



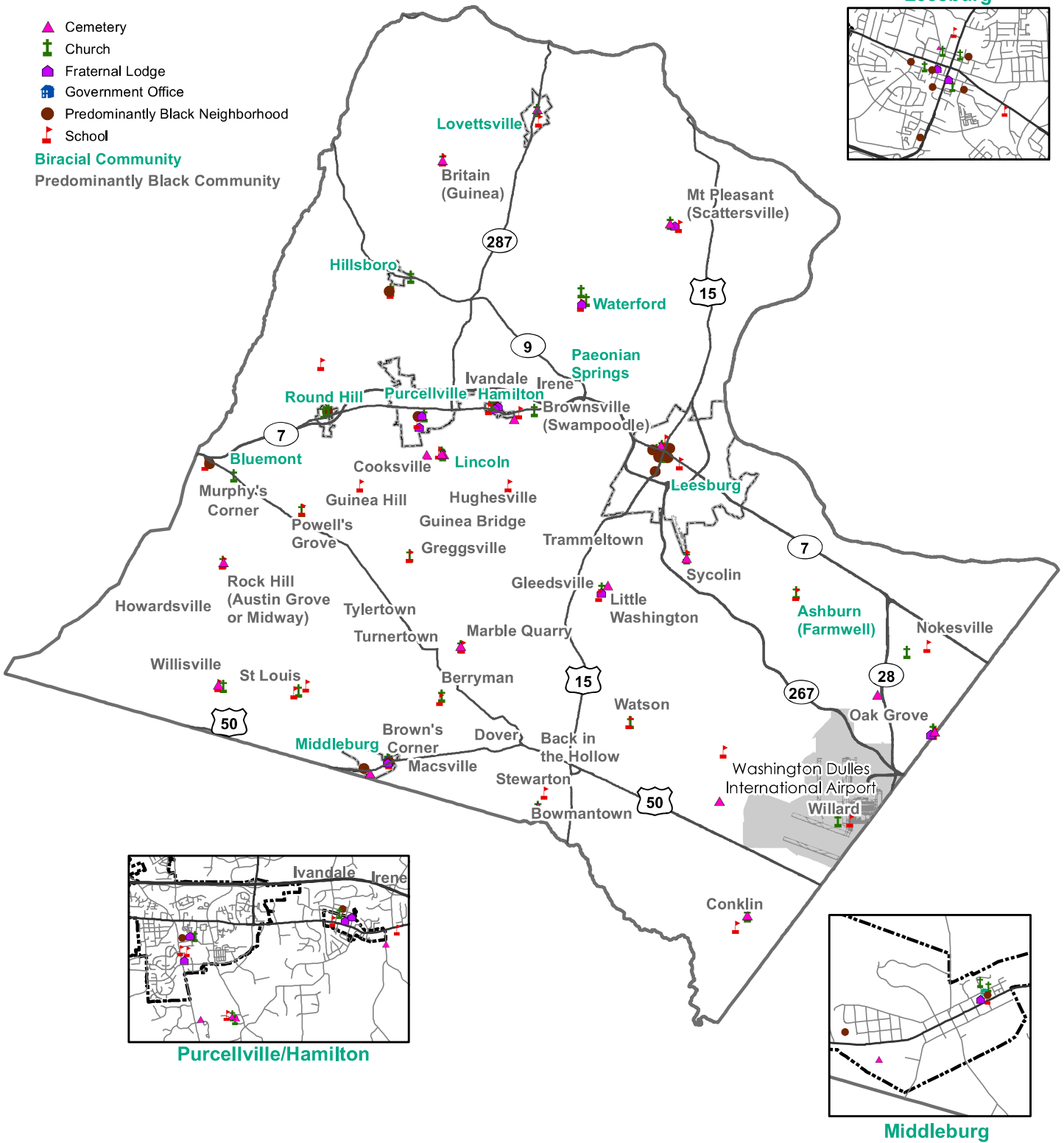
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



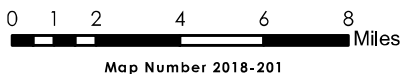
Loudoun County  
**African American  
 Historic Communities**  
 2019 General Plan



- ▲ Cemetery
- ✚ Church
- 🏠 Fraternal Lodge
- 🏛️ Government Office
- Predominantly Black Neighborhood
- 🎓 School
- 🌿 Biracial Community
- 🏘️ Predominantly Black Community



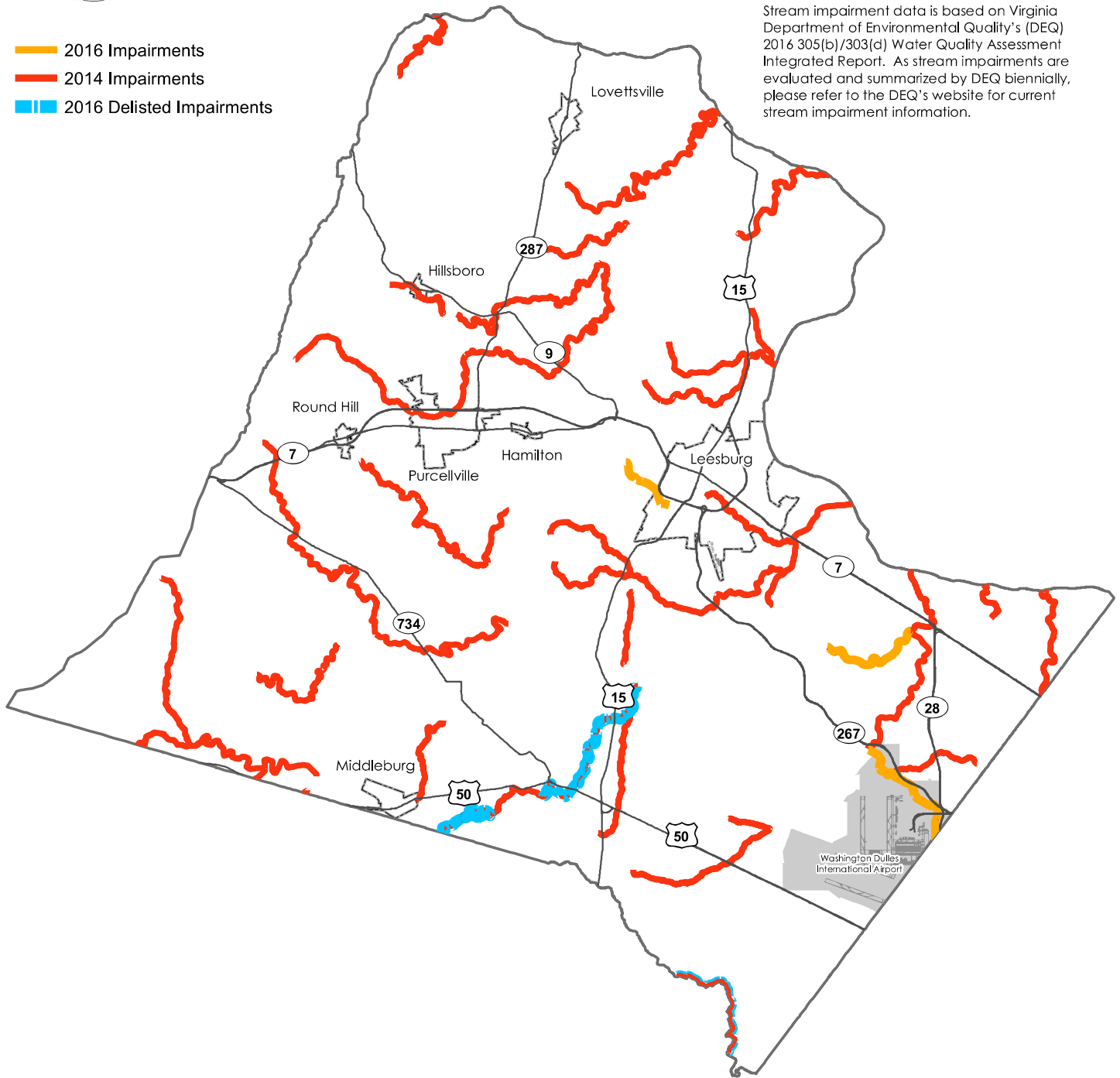
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



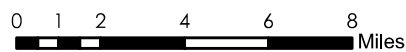


- 2016 Impairments
- 2014 Impairments
- 2016 Delisted Impairments

Stream impairment data is based on Virginia Department of Environmental Quality's (DEQ) 2016 305(b)/303(d) Water Quality Assessment Integrated Report. As stream impairments are evaluated and summarized by DEQ biennially, please refer to the DEQ's website for current stream impairment information.

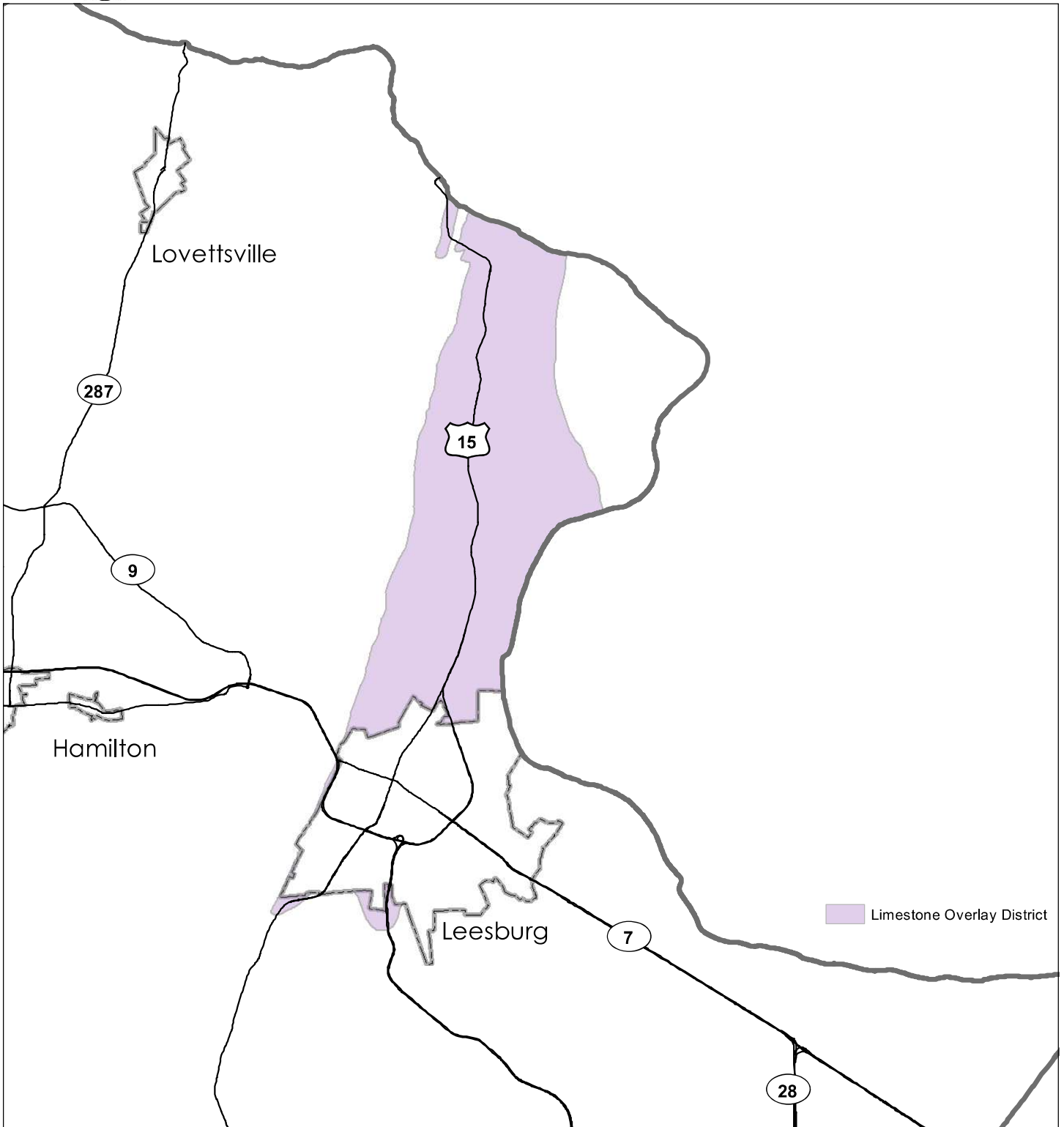


Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.

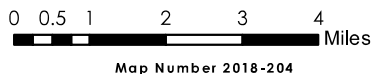


Map Number 2018-203

Loudoun County  
**Limestone  
Overlay District**  
2019 General Plan



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



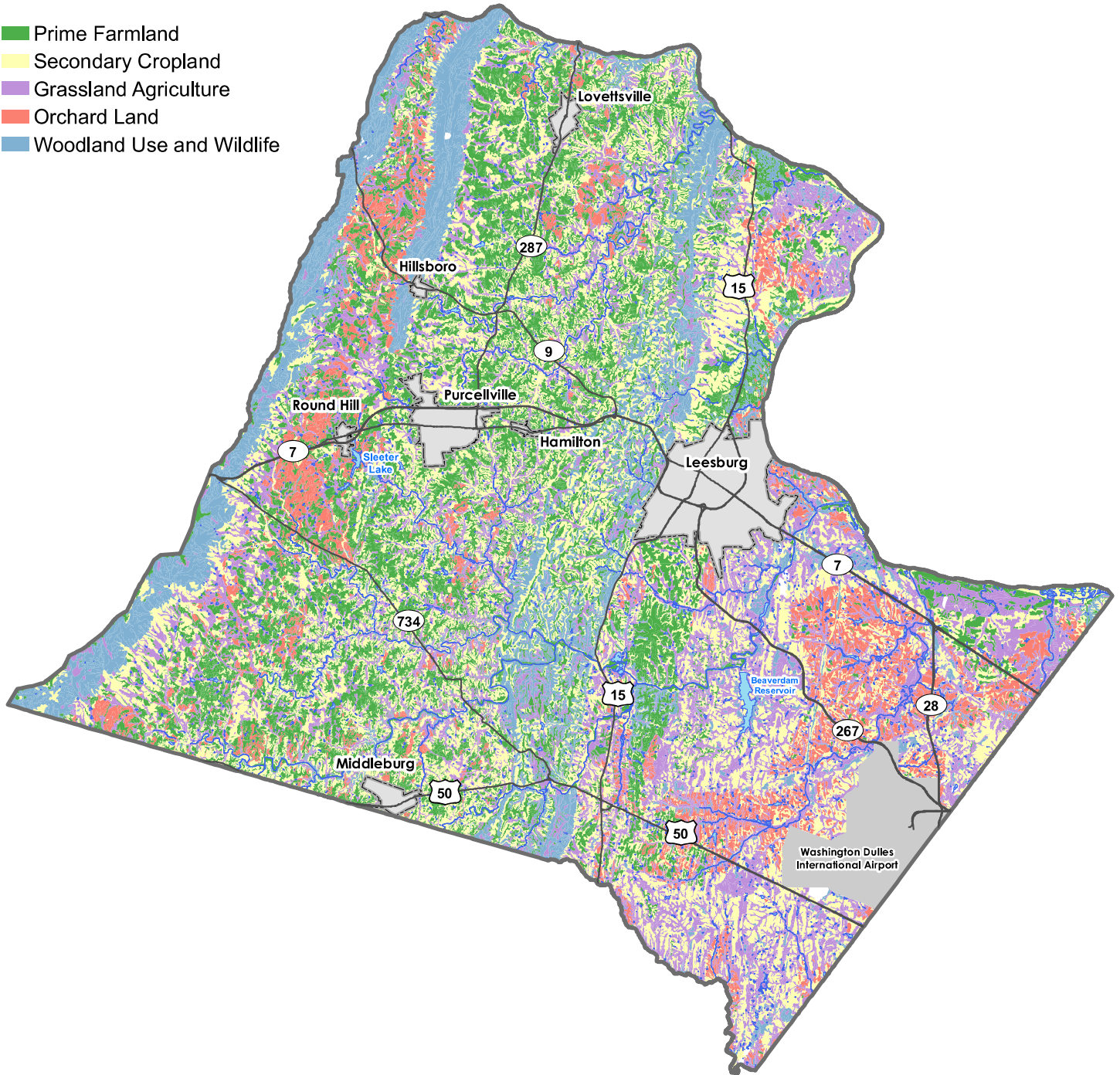
Map Number 2018-204



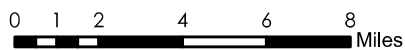
Loudoun County  
**Prime  
 Agricultural Soils**  
 2019 General Plan



- Prime Farmland
- Secondary Cropland
- Grassland Agriculture
- Orchard Land
- Woodland Use and Wildlife



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



Map Number 2019-263

# Chapter 4 - Housing

## Table of Contents

Vision.....	2
Introduction.....	2
Trends and Influences .....	4
Housing Demand and Inventory .....	4
Housing Affordability.....	5
Importance to the Economy .....	7
Planned Residential Growth Approach.....	12
Housing Needs of a Diverse Community .....	13
Housing Cost Impacts of Current Fiscal Policy.....	15
Policies, Strategies, and Actions.....	15

*This page left blank for printing purposes.*

# Chapter 4 - Housing

## Vision

Provide housing options that can accommodate a variety of lifestyles, households, ages, cultures, market preferences, incomes, and needs.



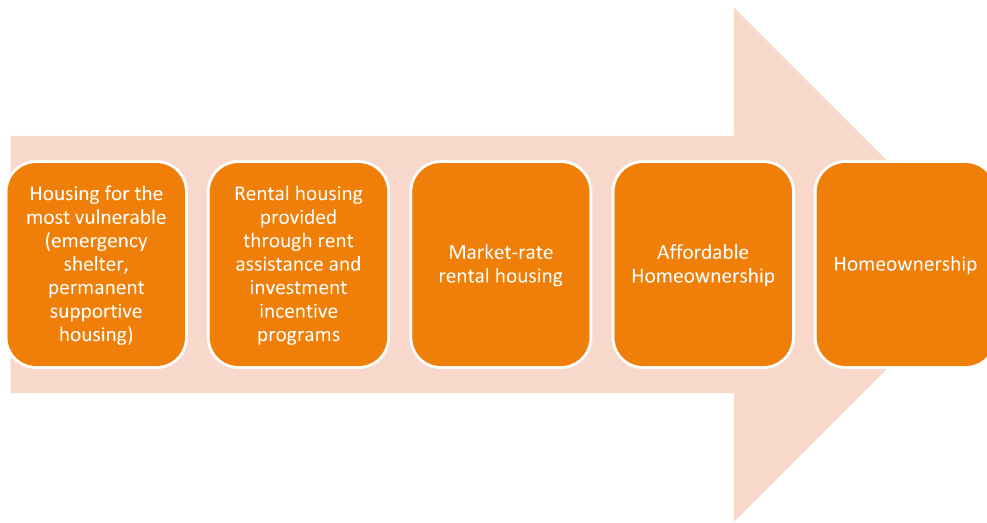
## Introduction

The County's primary housing objective is to ensure that an adequate supply of housing—varied in type and price and located near necessary services and amenities—is available for existing and future residents. The fundamental concept of a *continuum of housing*<sup>1</sup> refers to the variety of housing types, sizes, and prices (both for rental and homeownership) required to meet the County's current and anticipated needs, and the County seeks to align housing availability along this continuum. The *Loudoun County 2019 General Plan* (General Plan) provides a renewed opportunity for the County to adopt a housing policy direction that promotes an inclusive, diverse, and flexible community..

Figure 1 illustrates the continuum of housing needs as discussed in this chapter. The General Plan takes a multifaceted approach to increasing the availability of diverse housing stock in the County and aligning housing affordability with the continuum of housing need. The General Plan anticipates that increases in the provision of a variety of housing types, facilitated through regulation and planned land use, will help fulfill the demand for housing and may temper rising housing costs overall. A variety of existing and planned County initiatives and programs, used in conjunction with state, federal, and private sector resources, will increase housing options that address affordability.

---

<sup>1</sup> This chapter introduces several new concepts and terms to facilitate the discussion of Loudoun County's housing trends, needs, and objectives. These terms are italicized and defined for clarity and emphasis and are also included in the glossary of this document.

**Figure 1. The Continuum of Housing**

The Code of Virginia requires that each locality’s comprehensive plan include “the designation of areas and implementation measures for the construction, rehabilitation, and maintenance of affordable housing, which meets the current and future needs of residents of all levels of income” while also considering the current and future needs of the region in which the locality is located (Code of Virginia, Section 15.2-2223). A sufficient supply of housing that is *affordable*—that is, requiring no more than 30 percent of household income—for all households at all income levels is vital to the economic health of the entire community. A continuum of housing choices is necessary to attract and retain employers and workers and to create a resilient, inclusive, and diverse community. The approach to housing in the General Plan recognizes that the amount, type, location, and cost of housing is a critical consideration in Loudoun County’s long-range planning, with major implications for land use, economic development, community form, and resident economic stability.

This chapter aims to address the housing needs of Loudoun’s current and future population. The Trends and Influences section describes Loudoun’s evolving housing landscape, identifying the challenges and opportunities that will continue to affect the provision of a continuum of housing to a diverse population. The Policies, Strategies, and Actions in the Plan support the use of the County’s land use authority to facilitate the fulfillment of *unmet housing needs*, which are defined as the lack of housing options for households earning up to 100 percent of the *Area Median Income* (AMI).<sup>2</sup> The General Plan further acknowledges that addressing the County’s current and future housing challenges will require collaboration among government, private sector, and non-profit stakeholders. Significant changes to the County’s land use and zoning regulations will be necessary to address the County’s housing needs, with a particular focus on identifying appropriate areas for new residential growth, redevelopment, and increased residential densities. This chapter

<sup>2</sup> Area Median Income is defined as the middle income in a specific metropolitan area; half of households of a particular size have incomes higher and half have incomes lower. AMI is used to determine eligibility for housing programs.

affirms policies, actions, and programs that have proven successful while setting forth new and innovative strategies and a commitment to implement them.

## Trends and Influences

Since the late 20<sup>th</sup> century, Loudoun County has experienced tremendous growth because of its convenient access to Washington, D.C, high quality of life, and scenic environment. This growth creates strong demand for housing. The County, through land use policy, has promoted this growth in the eastern portion of the County where the market forces for new development have been strongest, mainly due to the area's proximity to Washington, D.C., an expanding regional job market, and the availability of central water and sewer. The development has resulted in a shrinking supply of available land for additional residential growth in traditional suburban development patterns. However, there remains strong market demand for housing in Loudoun County, necessitating housing strategies that increase density, incentivize innovation in unit types, facilitate affordability by design and price, and reduce development costs.

Since 2000, Loudoun County has experienced significant and increasingly diverse population growth. Age demographics have shifted as well, with young families and workers and adults over the age of 55 comprising a greater share of the population in 2017 than 2000. These factors, among others, drive housing preferences in Loudoun County now and in the coming decades.

Over the planning horizon, the County has many challenges to overcome in order to meet its goal of providing a continuum of housing choices. During the development of the Comprehensive Plan, the public expressed broad concerns regarding rising housing costs and the availability of diverse housing products to meet the needs of the County's growing populace. As development pressure grows, the County's older housing stock, which often comprises smaller and lower priced units, is also vulnerable to redevelopment. The policies of this chapter are designed to influence development to better meet residents' needs across the continuum of housing.

## Housing Demand and Inventory

The County has undertaken two studies in recent years to project the future market demand for new housing units. The 2017 *Housing Needs Assessment* produced by Lisa Sturtevant and Associates, LLC, in collaboration with the George Mason University Center for Regional Analysis, assessed the County's current and future housing needs based on economic and demographic forces (<https://www.loudoun.gov/documentcenter/view/127559>). In January 2018, Kimley-Horn completed a *Market Analysis* as part of the Envision Loudoun effort (<https://www.loudoun.gov/DocumentCenter/View/131399>). Both studies confirm that the demand for new residential development will remain high and highlighted the demand for a continuum of housing to meet the demand of a growing population. Despite adding over 204,100 people and 67,600 housing units between 2000 and 2015, the *Housing Needs Assessment* concluded that the housing units provided were not keeping pace with the evolving needs and demands of Loudoun's populace in terms of availability, type, and price.

The residential rental *vacancy rate*, or the proportion of rental units that are available for rent or otherwise unoccupied, is an indication of supply in the home rental market. According to the *Market Analysis*, a rental vacancy rate of seven percent indicates a healthy balance in which there

is an adequate supply of vacant units to provide renters with options while still meeting the cash flow needs of the community. Low vacancy rates in the rental market can be an indication that demand exceeds the supply of housing units. According to the *Housing Needs Assessment*, the County's rental vacancy rate has remained below five percent since 2009, despite adding rental units during that time. The 2013-2017 U.S. Census Bureau American Community Survey (ACS) estimates that vacancy rates in Loudoun County were 3.9 percent for rental units as compared to five percent for the Washington D.C., Metropolitan Area overall. These consistently low vacancy rates indicate a tight rental market with high demand for units, which can result in higher rental prices.

*Months of supply*, which measures how many months would be needed to sell all of the existing home sales inventory available at the current rate of demand, is an indication of supply for the home sales market. Months of supply is calculated by dividing current inventory by current sales. A six-month supply indicates a balanced market. A market with fewer than six months of supply favors sellers, and a market with more than six months of supply favors buyers. In December 2018, there were 2.1 months of supply available in Loudoun County, compared to 1.9 in December 2017. Similar to the rental market, this limited supply puts upward pressure on the cost of homes.

### **Housing Affordability**

Increased housing costs have outpaced wage growth nationally and locally over the last several decades.<sup>3</sup> According to the Department of Housing and Urban Development (HUD), from 2000 to 2017, the AMI for the Washington D.C., Metropolitan Area increased by more than 30 percent. In that same time period, median existing home prices in Loudoun County jumped 116 percent and median rental prices increased 75 percent. In 2000, a household in Loudoun County would have required approximately 90 percent AMI to afford a home at the mean sales price. By 2018, a household would have needed to earn 148 percent AMI to affordably purchase a home at the mean sales price. If this trend continues, more households, including households of higher incomes, will have difficulty finding housing that is affordable to them. As detailed in this section, a growing proportion of households is unable to afford the housing that is available and are pushed to either live outside of the County or spend a greater proportion of their income on housing costs in order to live in the County. This has created an *affordability gap*, which is defined as the difference between the cost of housing and the amount households can afford to pay (assumed to be 30 percent or less of household income).

As indicated in the following table, the mean sales price across all housing units is not affordable to a growing number of households, even those earning more than the Washington D.C. Metropolitan AMI, which was \$117,200 in 2018. This is especially true of new construction, which commands an average cost more than seven percent higher than existing homes. Among homes sold in 2018, only multifamily units had an average price affordable to households earning 100 percent of AMI. In 2018, the estimated *purchasing power* – calculated as household income

---

<sup>3</sup> 2018 State of the Nation's Housing, Joint Center for Housing Studies; [http://www.jchs.harvard.edu/state-nations-housing-2018?\\_ga=2.56029803.1550908217.1547834228-1182365031.1547834228](http://www.jchs.harvard.edu/state-nations-housing-2018?_ga=2.56029803.1550908217.1547834228-1182365031.1547834228)

multiplied by three – was \$351,600 for a household earning 100 percent AMI, while the mean sales price was \$520,681.

**Table 1. Mean Home Sales Prices and Affordability, 2018<sup>4</sup>**

Unit Type	Mean Sales Price	% AMI Needed
<b>All Types</b>	\$520,681	148%
<b>Single-Family Detached</b>	\$647,364	184%
<b>Single Family Attached</b>	\$447,979	127%
<b>Multi-Family</b>	\$311,409	89%

The affordability gap is also apparent in rental housing costs: the unit sizes available for larger families require higher incomes and even the smallest rental units that would house a single person tend to be unaffordable. According to the Urban Institute’s 2017 study of rental housing, Loudoun County has a deficit of approximately 2,500 rental units affordable to *extremely low income households (ELI)*, or those households with incomes at or below 30 percent of the AMI.<sup>5</sup> Based on the data, 4,000 extremely low income households existed in the County, but only 1,550 units were available at rents those households could reasonably afford. For extremely low income residents unable to find housing they can afford in Loudoun, the options are to become *cost-burdened*, crowd several households into a single housing unit, or seek housing elsewhere.

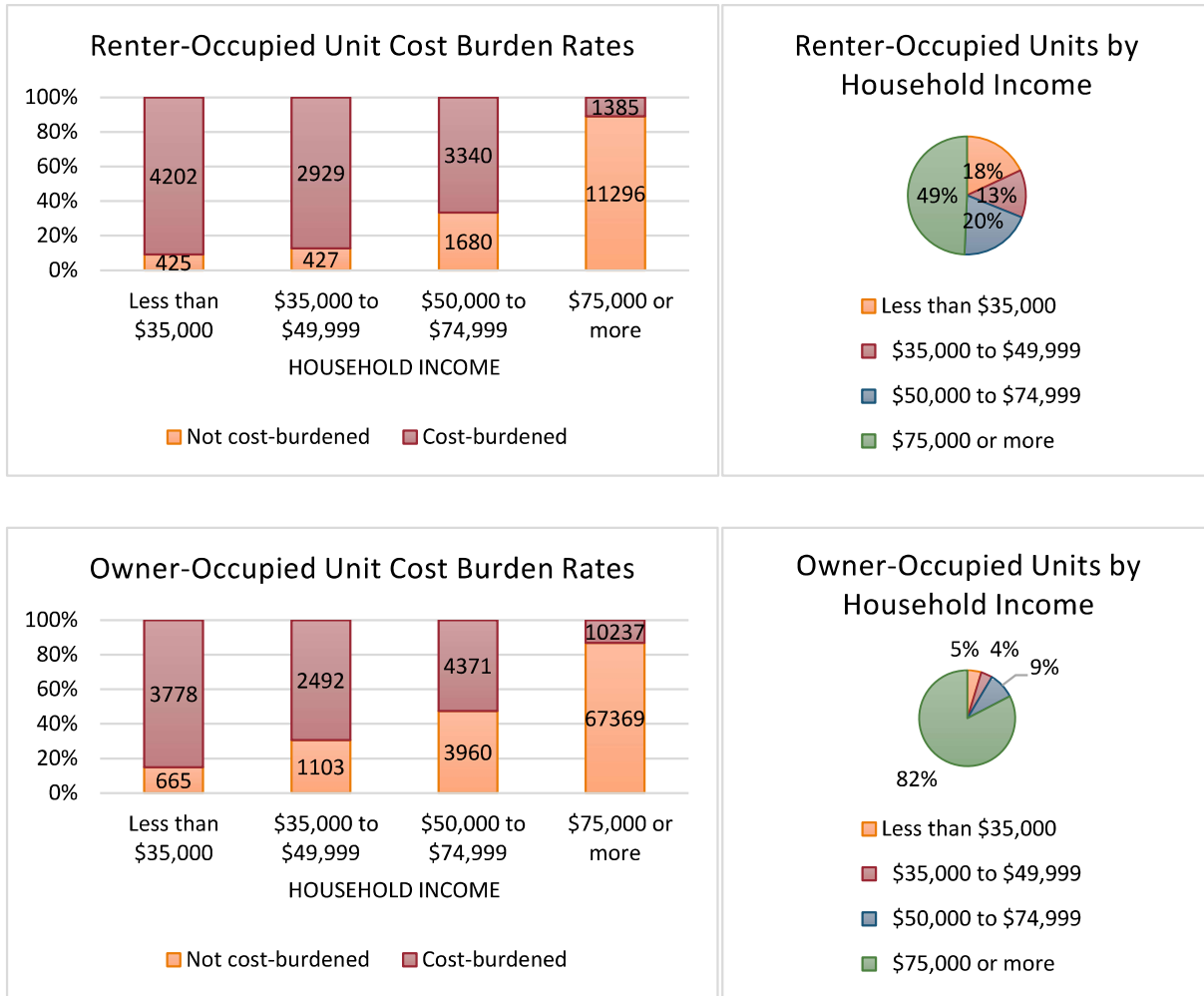
The low supply of housing, both rental and for sale, across all price ranges contributes to the high cost of housing for the average County resident and is an ongoing issue in Loudoun, as indicated by persistently high numbers of *cost-burdened households*, or those that spend 30 percent or more of their income on their rent or mortgage. Households paying more than 50 percent of their income on housing are considered *severely cost-burdened*. Cost burden can occur at any income level along the housing continuum and affect both homeowners and renters. Cost burden calculations only include housing costs and do not consider other costs that a household must bear, such as the cost of transportation. The greater the percentage of income that households have to spend on housing, the less income that is available to spend on the other goods and services needed to live in the County. Residents that live outside the County as a result of their inability to find housing can strain County transportation systems and lose important social and employment connections. Renters who want to become homeowners in Loudoun County face similarly difficult choices. Figure 2 below, which was compiled using 2013-2017 ACS data, demonstrates that cost burden in the County varies by income level and between those who own and those who rent their homes.

<sup>4</sup> Loudoun County Commissioner of the Revenue; Bright MLS

<sup>5</sup> <https://apps.urban.org/features/rental-housing-crisis-map/detail.html?fips=51107>



**Figure 2. Cost-Burdened Households by Income, 2013-2017<sup>6</sup>**



Households with an income exceeding \$75,000—the highest household income category for ACS cost burden data—comprise approximately 75 percent of households and face cost burden rates of 13 percent among homeowners and 11 percent among renters. Cost burden increases precipitously among the remaining households with a median income below \$75,000. As an example, 85 percent of households earning less than \$35,000 are cost-burdened. Housing costs are especially burdensome for renters earning less than \$35,000 a year. This data highlights that households at all income levels face housing affordability challenges in the County, and this challenge is especially significant for households of lower incomes. The *Housing Needs Assessment* identifies demographic groups that face cost burden at a higher rate than County households overall to include young adults (age 25 or below) and older adults (age 62 and older) living alone.

### Importance to the Economy

As discussed in Chapter 5: Economic Development, the County works to attract, grow, and retain targeted businesses of all sizes. Housing variety, availability, and affordability are among the

<sup>6</sup> U.S. Census Bureau, American Community Survey 5-Year Estimates 2013-2017

factors that corporations, companies, and organizations use to determine where to locate. Housing availability, and affordability in particular, factor into companies' ability to attract and retain employees; companies are less likely to locate in a community where finding housing is a barrier for their employees and weakens the ability of employers to attract workers. Conversely, when the workforce is unable to find affordable housing or continue to afford the housing they have, they will explore other options, sometimes driving them away from the community. This causes workforce instability and adversely affects Loudoun's economic development prospects.

As shown in Table 2, households earning less than 100 percent AMI comprise significant segments of the County's workforce, including retail and service workers, skilled tradespersons, and various professional workers. According to the Department of Economic Development, in 2016 over 48 percent of Loudoun's workforce had occupations that earned less than 40 percent AMI. Additionally, approximately 55 percent of the workforce earned less than 65 percent of AMI.

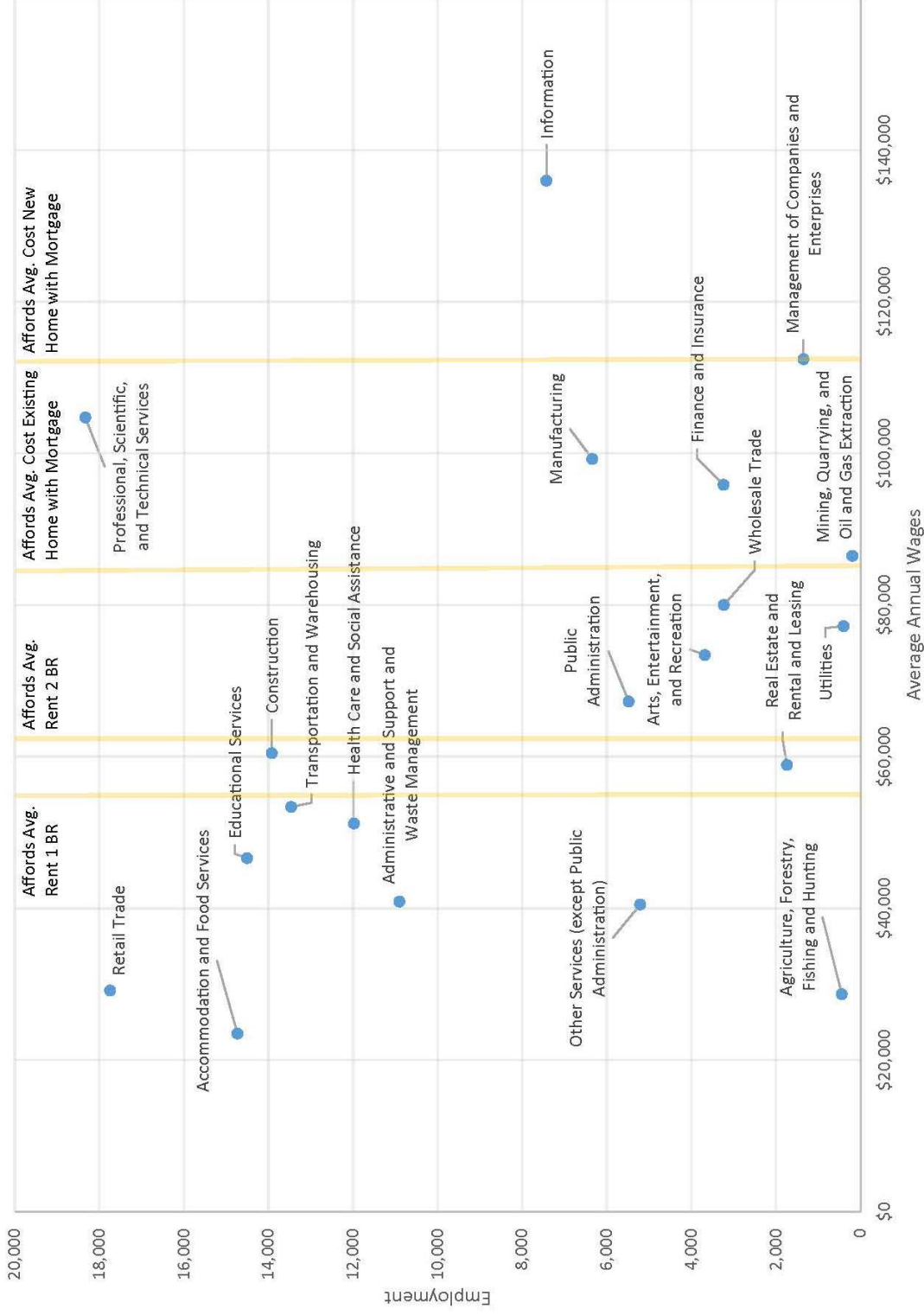
As demonstrated in Figure 3, a Department of Economic Development analysis found that employees working in industries supplying the most jobs in the County—including Retail, Accommodation and Food Services, and Educational Services—do not earn enough to afford the average rent for a one-bedroom apartment in the County. Employees in higher wage sectors face housing affordability challenges as well. For example, newly constructed homes in the County are, on average, not affordable to employees in the Professional, Scientific, and Technical Services sector, which provides more jobs than any other sector in the county. This illustrates the challenge facing employers and their employees regarding the availability of jobs in close proximity to housing that is affordable at current wages.

**Table 2. Incomes and occupations in the Greater Washington D.C. Metro Region<sup>7</sup>**

<b>Income Group (FY2018)</b>	<b>What type of household is this?</b>
<b>0-30 percent AMI</b> <b>Extremely low-income (ELI)</b> <b>\$0-\$35,150 family of four</b> <b>\$0-\$24,650 single person</b>	People who are unable to work due to disability or age;  Seniors on fixed incomes; or  Low-wage workers, including many retail, restaurant, and day care workers.
<b>30-50 percent AMI</b> <b>Very low-income (VLI)</b> <b>\$35,150-\$58,600 family of four</b> <b>\$24,650-\$41,050 single person</b>	One person working as an administrative assistant, electrician or teacher's assistant; or  Two workers in the retail, restaurant, or child care sectors.
<b>50-80 percent AMI</b> <b>Low-income (LI)</b> <b>\$58,600-\$77,450 family of four</b> <b>\$41,050-\$54,250 single person</b>	One or two workers in entry-level jobs including research associates, program managers, nursing aides, or nurses (LPNs).
<b>80-100 percent AMI</b> <b>Moderate income (MI)</b> <b>\$77,450-\$117,200 family of four</b> <b>\$54,250-\$82,188 single person</b>	One or two workers in entry-level or mid-level jobs, including police officers, fire fighters, school teachers, and IT support personnel
<b>100-120 percent AMI</b> <b>\$117,200 - \$140,640 family of four</b> <b>\$82,188 - \$98,626 single person</b>	One or two workers in mid-level jobs, including accountants, loan officers, and machinists

<sup>7</sup> Table taken from *A Guidebook for Increasing Housing Affordability in the Greater Washington Region* – updated figures with HUD 2018 Income Limits.

**Figure 3. Housing Costs and Employment/Annual Wages in Loudoun County by Industry**



Created October 2017  
Loudoun County Department of Economic Development

Affordability challenges can drive employees to seek housing in other jurisdictions and require that they commute into the County for work. As of 2016, approximately 56 percent of Loudoun's workforce resided in the County, while the remaining 44 percent commuted into the County daily. According to the *Housing Needs Assessment*, 61,600 workers commuted each day into Loudoun from 2009 to 2013. Ten percent had commutes that were 90 minutes or longer, compared to 5.5 percent for the Washington D.C. Metropolitan Area. Of these in-commuters, many worked in relatively low-wage industries such as Construction, Transportation and Utilities, and Leisure and Hospitality.<sup>8</sup> According to the *Housing Needs Assessment*, only 30 percent of Construction jobs located in Loudoun County are held by County residents, and only one-third of Transportation and Utilities jobs are held by County residents. Workers in the Leisure and Hospitality sector were the least likely to commute from outside the County and almost 75 percent of these jobs are held by County residents. Leisure and Hospitality jobs are the second lowest average wage occupation in the County. Lower-wage employment sectors are growing, so the rate of in-commuting will increase if Loudoun does not have a continuum of housing to accommodate the workforce. As more workers find housing in more distant areas, congestion on roadways into and through the County will continue to increase.

The availability of a continuum of housing may also affect the economic viability of Loudoun's Metrorail stations areas. For the Silver Line Metrorail expansion to gain sufficient ridership, neighborhoods within close proximity to the Metrorail stations need a mix of housing types and prices to ensure greater housing affordability and provide access to a greater diversity of households. The availability of housing with access to transit can also increase employers' ability to attract and retain employees.

In addition to employees of local businesses, teachers, nurses, police officers, firefighters, and others who provide critical services in the community require housing. As shown in Table 3 such occupations are typically *moderate income*, or earning between 80 and 100 percent AMI. For many of these professions living close to work is important because of the need to respond quickly to emergencies or work long shifts. However, incomes in these professions do not align with the housing available in Loudoun County, creating quality of life concerns both for public servants and the communities they serve. Households above 100 percent AMI also struggle with housing affordability in the County; Table 3 shows that typical rents in the County do not align with what families can afford. Additionally, homeownership costs are not affordable to most households; even households earning up to 120 percent AMI face limited choices.

---

<sup>8</sup> 2017 Housing Needs Assessment.

**Table 3. Housing Affordability by AMI in the Greater Washington D.C. Metro Region<sup>9</sup>**

<b>Income Group (FY2018)</b>	<b>How much can they afford to spend on housing each month?</b>
<b>0-30 percent AMI</b>	\$0-\$881 family of four \$0-\$617 single person
<b>30-50 percent AMI</b>	\$881-\$1,466 family of four \$617-\$1,027 single person
<b>50-80 percent AMI</b>	\$1,466-\$2,345 family of four \$1,027-\$1,644 single person
<b>80-100 percent AMI</b>	\$2,345-\$2,932 family of four \$1,644-\$2,055 single person
<b>100-120 percent AMI</b>	\$2,932 – 3,907 family of four \$2,055 - \$2,740 single person

### Planned Residential Growth Approach

Between 2000 and 2016, Loudoun County’s population and number of housing units more than doubled. Residences built during this time are primarily located along the western and southernmost portions of the Suburban Policy Area (SPA) and in parts of the Transition Policy Area (TPA), with other concentrations of new homes built within the Towns and in their JLMAs. The vast majority of the land planned for residential uses in the SPA is either developed or approved for development. In response to these constraints, the General Plan seeks to provide new housing units through a combination of increased residential densities in the Urban Policy Areas (UPA) and SPA and targeted opportunities for clustered compact neighborhoods in the TPA.

As described in Chapter 2, the General Plan anticipates the majority of residential growth to occur in the UPAs, with limited higher density growth in the limited greenfield and redevelopment areas of the SPA and targeted areas of the Transition Policy Area (TPA). Throughout these areas, the General Plan emphasizes opportunities to create places that will meet the needs of the diversifying community, including housing affordability. The UPAs create opportunities for new housing types to locate in close proximity to planned Silver Line Metrorail stations, and anticipated employment centers, services, retail, and entertainment. A mix of compact single-family detached and single-family attached housing products in the SPA and limited areas of the TPA are envisioned to help address the unfulfilled demand for these housing types in the County.

Maturing neighborhoods, primarily concentrated in the SPA, may also provide limited opportunities for redevelopment or infill communities that better meets the housing affordability needs of the County’s future residents. These opportunities are described in greater detail in the Infill and Redevelopment section of Chapter 2. As the County adopts policies and regulations that help guide such developments, it is important that such policies promote housing affordability and prevent removal of existing affordable housing.

<sup>9</sup> Table taken from A Guidebook for Increasing Housing Affordability in the Greater Washington Region – updated figures with HUD 2018 Income Limits.

## Housing Needs of a Diverse Community

Demand is growing for diverse housing types to address the needs of the County’s future residents. As discussed in the Urban Land Institute’s survey of American housing preferences *America in 2015*, *Millennials* have demonstrated a greater preference for walkable communities with convenient access to outdoor spaces and amenities that allow them to rely less on cars. The aging Baby Boomer generation (born between 1946 and 1964) creates a need to provide a range of senior housing opportunities. Multigenerational family living arrangements have risen considerably over the past several decades. As of 2016, approximately 20 percent of Americans lived in multigenerational households, up from a low of approximately 12 percent in 1980.<sup>10</sup> In Loudoun County, at least 4.3 percent of households include three generations, and 11 percent of adults over the age of 18 are living with their parents.<sup>11</sup> The *Housing Needs Assessment* summarized these evolving housing market trends for Loudoun County through 2040, noting increasing demand for:

- Low-cost, small unit rental housing for entry level workers below the age of 35;
- Small, modestly-priced housing for young families;
- Accessible housing and communities for older adults and persons with disabilities;
- Multigenerational housing design;
- Housing options affordable to extremely low-income, very low-income, low-income and moderate-income households; and
- Single family housing for high-income earners.

### Universal Design

Housing and community design is constantly evolving to meet the needs of populations with diverse abilities. Some past attempts to increase accessibility in the built environment have focused on conspicuous retrofits or the provision of “separate but equal” facilities for persons with disabilities or other access limitations. Increasingly, planners, designers, and advocates are emphasizing the importance of creating environments that are designed to meet the needs of all people as a basic principle of good design — a concept known as *universal design*. Universal design requires construction that is useable by all people without the need for adaptation or specialized design. In addition, universal design features increase safety and ergonomic use by residents.

Universal design is a particularly important consideration in the development of new housing. The provision of universally functional homes helps create more inclusive communities, supporting populations diverse in age and ability to live and interact in the same community. The Policies, Strategies, and Actions described in this chapter, as well as those in Chapter 2, promote the

---

<sup>10</sup> <http://www.pewresearch.org/fact-tank/2018/04/05/a-record-64-million-americans-live-in-multigenerational-households/>

<sup>11</sup> 2013-2017 American Community Survey data.

provision of housing units that reflect these principles as an important step toward achieving the broad housing continuum needed to serve the entire community.

### The Missing Middle

Suburban and urban localities are exploring new ways to meet the demand for diverse housing types close to services and amenities while maintaining the scale and community character of existing neighborhoods. One approach encourages the development of *missing middle* housing, which uses a mix of small-scale single-family units, accessory dwelling units, and multi-family units to create the perception of lower density. This approach is intended to help address the continuum of housing needs by providing housing choices and prices that fit in between large-lot, single-family detached units and high-rise apartment buildings, while fostering the neighborhood scale that many residents seek.

Missing middle housing is generally discussed in terms of design; specifically, it focuses on the form, scale, size, and massing of units, their relationship to the street, and the design of streets themselves. The General Plan envisions creative residential and mixed-use development proposals in appropriate areas of the County that will achieve the continuum of housing types and prices through the provision of missing middle housing products. Several place types envisioned in the UPAs, SPA, and TPA are intended to accommodate missing middle housing products, including Urban Transit Center, Suburban Compact Neighborhood, Suburban Mixed Use, Transition Compact Neighborhood, and Transition Commercial Center. Neighborhood place types provide opportunities for smaller housing types that would blend with the existing neighborhood scale of these areas. In mixed-use place types, missing middle housing can be used to create transitions between higher density nodes and adjacent residential neighborhoods. These elements are described in greater detail by place type in Chapter 2 of the General Plan.

The General Plan includes flexible land use policies and encourages streamlined regulations that facilitate the development of missing middle units, taking a form-based rather than a use-based approach to land development regulations. Regulations focusing on floor area ratio (FAR), lot size, and building and unit size rather than overall density will help accommodate a greater diversity of housing types that may yield affordable prices while ensuring compatibility with the scale and character of existing suburban and urban neighborhoods.

**Figure 4. The Missing Middle Housing Spectrum**



*Courtesy of Opticos Design, Inc.*



## Housing Cost Impacts of Current Fiscal Policy

Development of new housing attracts new residents, and with new residents comes increased demand for public services such as law enforcement, fire protection, emergency medical services, and education. To implement these services, the County has developed Capital Intensity Factors (CIF) to estimate the anticipated per unit costs of new residential development to construct needed capital facilities (<https://www.loudoun.gov/cif>).

Where allowed by the Code of Virginia, the County works with the developers of residential projects to mitigate the capital facility impacts of their projects. This is typically done with contributions to capital facilities formalized in proffer statements. Since market conditions dictate the sales price of housing units, a developer adds the cost of the capital facility contribution in each unit's sales price, which increases the cost of housing. For *Affordable Dwelling Units* (ADU) provided pursuant to Article 7 of the Zoning Ordinance, which are restricted for occupancy by households whose income falls within 30 to 70 percent AMI, the County absorbs the capital facility impacts generated by that housing by crediting the developer the costs for each ADU's impacts.

Since the County's CIF has been based on unit type, rather than unit size, and developers intend to maximize profit margins, an incentive to develop smaller or modest sized housing has typically not been present. Instead, this has led to the construction of larger, higher cost residential housing units that are affordable to households with incomes greater than 100 percent of AMI. As reflected in the policies of this chapter, identifying these influences provides the County an opportunity to address the issues that impede or hinder market provision of smaller, more modestly sized houses that may be more affordable.

## Policies, Strategies, and Actions

Loudoun County must take a collaborative approach to providing a full continuum of housing solutions to support the community. This approach will require collaboration and partnership within the government and with the private sector and the community. This approach affirms policies, actions, and programs that are successful and sets forth new and innovative strategies and a commitment to implement them.

Unless otherwise specified, the following policies, strategies, and actions apply Countywide.

**Housing Policy I: Increase the amount and diversity of housing that is available in terms of unit type, size, and price and promote innovative designs throughout Loudoun County that are desirable and attainable to all income levels.**

### Strategy

- 1.1 Use innovative and flexible regulatory approaches to help fulfill the continuum of housing needs in a variety of locations and settings throughout the County.

### Actions

- A. Promote mixed-income housing developments that provide a continuum of housing types and prices.

- B. Amend zoning regulations to accommodate more innovative and flexible density, building height, lot size, lot line, parking, setback, and design standards through the implementation of a planned unit development (PUD) ordinance.
- C. Regulate multi-family development by floor area ratio (FAR) instead of by dwelling units per acre.
- D. Develop zoning regulations and design standards that facilitate innovative, lower cost, compact residential and mixed-use development that emphasizes the physical form and the character of the built environment and seamlessly integrates uses.
- E. Amend zoning regulations and design standards to permit accessory housing product types (e.g., carriage houses, accessory apartments, and cottages) in residential and mixed use zoning districts and incentivize the integration of universal design features in accessory units.
- F. Amend zoning regulations to expand the number of districts where manufactured housing, accessory units, and alternative housing types are allowed (e.g., small lot, zero lot-line, micro-units, maximum unit sizes, and innovative housing types).
- G. Develop regulations and standards by which affordable housing development can be approved as a by-right use.

Strategy

- 1.2 Promote dense housing products that are affordable by design and price, especially in urban settings close to transportation alternatives.

Actions

- A. Amend zoning regulations and design standards to incorporate density bonuses and other incentives into appropriate zoning districts to encourage the provision of housing to address the County’s unmet housing needs in areas currently served by or planned for mass transit.
- B. Require fewer parking spaces in new developments located proximate to public transit that achieve a continuum of housing types and prices.

Strategy

- 1.3 Reevaluate Capital Facility Impacts to acknowledge the varied impacts of a broader diversity of unit types, sizes, and households.

Actions

- A. Identify alternatives in calculating the costs of development for the impact on capital facilities (such as a rating system) to reduce costs and to encourage diversity in unit types produced. Explore the use of square footage and/or number of bedrooms to assess capital facility costs associated with a broad range of unit types to encourage the development of needed unit types (for example, studio and one bedroom apartments, smaller homes).

Strategy

- 1.4 Ensure that housing for special needs populations is integrated within existing and planned communities.

Action

- A. Amend zoning regulations and design standards to incentivize the integration of universal design elements in residential units and in the design of neighborhoods.

Strategy

- 1.5. Provide for diverse housing options and prices with access to a range of amenities, services, and transportation options for older adults (55+).

Actions

- A. Encourage the provision of a diversity of housing types and prices within active adult and/or age restricted housing development projects.
- B. Incentivize the provision of age-restricted housing units for residential or mixed-use development proposals in transit centers and other areas planned for an integrated mix of uses to support older adults' option to live in close proximity to transit, retail, service, and entertainment uses.
- C. Ensure the provision of the following amenities and services on-site or within a safe and convenient distance for all age-restricted residential projects:
  - i. Community space including meeting rooms and recreational facilities;
  - ii. Retail uses in direct support of the development;
  - iii. Health or fitness center;
  - iv. Healthcare services;
  - v. Active recreation space; and
  - vi. Resident programming and services.
- D. Provide access to amenities and services through alternate modes of transportation such as walkability and pedestrian access, bicycle facilities, and public and/or private mass transit facilities such as mini-bus or shuttle services.
- E. Integrate transit facilities into all senior housing developments such as shuttle or mini-bus service and/or direct local and regional transit service to ensure access to local and regional amenities and services.
- F. Incorporate covered bus shelters with seating or a covered space for seniors to congregate near building entrances into all senior housing developments.
- G. Incorporate universal design features into all age-restricted residential developments, in keeping with Quality Development Policy 8 and all subordinate strategies and actions (see Chapter 2).

Strategy

- 1.6. Support mixed-use development projects that provide a continuum of housing types, sizes, and prices as well as commercial uses such as retail, entertainment, and offices in a walkable environment.

Actions

- A. Provide incentives to encourage zoning map amendments or zoning concept plan amendments on previously entitled properties that increase the provision of a mix of smaller housing types and affordably priced housing.
- B. Research and implement effective incentives, such as appropriate density increases for the provision of housing focused on the County’s unmet housing need proximate to major employment centers and public transit such as Silver Line Metrorail stations, as well as the offset of capital facilities contributions to reduce housing development costs to foster a continuum of housing affordability for workers in Loudoun.

Strategy

- 1.7. Ensure that infill and redevelopment projects provide a continuum of housing types and prices in areas with existing infrastructure and services.

Actions

- A. Develop zoning regulations and design standards to implement form-based approaches for infill and redevelopment areas that facilitate the development of “missing middle” housing product types and affordable prices.

**Housing Policy 2: Preserve existing affordable housing stock and ensure housing remains safe and habitable.**

Strategy

- 2.1. Leverage public and private resources to maintain housing that helps address unmet housing needs in Loudoun County.

Actions

- A. Bring existing housing in need of indoor plumbing, operational septic and water systems, and major system repair (e.g., new roofs or heating and cooling systems) up to safe and livable conditions.

Strategy

- 2.2. Preserve housing affordable to households earning less than 100 percent AMI that is currently provided by the market, and integrate it into redevelopment projects.

Actions

- A. Create an inventory of housing stock using County assessment data that identifies the type of unit, its location within the County, and general characteristics of the units.

- B. When redevelopment projects are proposed for areas with existing housing affordable to households earning less than 100 percent AMI in otherwise good condition, incentivize the preservation and rehabilitation of that existing housing stock.
- C. Require that redevelopment projects removing existing affordably priced units as a last resort provide a one-for-one replacement of similarly priced housing units in order to ensure no net loss of affordably priced units.
- D. Explore local funding options and implement housing programs that preserve and improve existing affordably priced housing.

### Housing Policy 3: Ensure County residents are able to access housing they can afford.

#### Strategy

- 3.1. Focus County funding, resources, and programs on the unmet housing needs of households earning up to 100 percent of the Washington Metropolitan Area Median Income (AMI).

#### Actions

- A. Develop an Unmet Housing Needs Strategic Plan, consistent with the adopted *Loudoun County 2019 Comprehensive Plan*, that specifically identifies strategies, actions, programs, and best practices to address the County's current and future unmet housing needs. Such plan should include, but is not limited to, down-payment assistance programs, utilization of housing trust funds, and home purchase programs, and should be developed prior to the approval of any zoning map amendments requesting higher densities planned in the Urban Policy Area outside the Metrorail Service Districts, Suburban Policy Area, and the Transition Policy Area. The plan would include estimates on unmet housing needs, establish development targets, and evaluate how housing programs address those needs every five years.
- B. Emulate, when appropriate, successful housing programs in other jurisdictions.
- C. Develop zoning regulations and design standards that remove barriers and incentivize the development of housing affordable to households at or below 100 percent AMI in all residential and mixed-use development.
- D. Reduce capital facilities proffer expectations as a means of incentivizing the provision of housing affordable to households earning less than 100 percent AMI in new transit-oriented development.
- E. Create an expedited permit process to fast-track applications for developers who commit to providing additional units affordable to households earning less than 100 percent AMI.
- F. Provide incentives such as those included in the Affordable Dwelling Unit regulations of the Zoning Ordinance to support Low Income Housing Tax Credit projects to

encourage zoning map amendments or zoning concept plan amendments for properties subject to previous legislative zoning approvals when they increase the provision of housing affordable to households earning less than 100 percent AMI.

- G. Strengthen Affordable Dwelling Unit regulations in the Loudoun County Zoning Ordinance and the County Codified Ordinances, to the greatest extent that the Code of Virginia allows, to increase the development of housing that helps address the County’s unmet housing needs in all residential and mixed-use development.
- H. Require housing units that help address the County’s unmet housing needs to be provided in residential developments that contain 24 or more dwelling units and are served by public sewer and water.
- I. Develop effective incentives that enable development to meet unmet housing needs to include housing for households with incomes at or below 30 percent AMI and 50 percent AMI, which is the area of greatest need.
- J. Address the housing needs of extremely low-income or vulnerable households including older adults on fixed incomes and persons with disabilities by exploring partnerships with healthcare providers, local nonprofits, and philanthropic organizations to develop targeted housing for this population.
- K. Preserve the County’s investment in ADUs by proactively purchasing ADUs approaching the end of the 15-year covenant period during which ADUs must first be marketed to ADU-qualified purchasers, and extend this 15-year period.
- L. Maximize the County’s investment in ADUs by extending the time period under the covenants during which ADUs must first be marketed to ADU-qualified purchasers and reevaluating the appropriate fee-in-lieu model when developers opt not to provide physical units.

### Strategy

- 3.2. Increase the financial resources gained from federal, state, local, and private sources to address the unmet housing needs in the County.

### Actions

- A. Identify and designate dedicated local funding sources to support the County’s plan to provide a continuum of housing.
- B. Use the Economic Development Authority (EDA) to issue tax exempt bonds for qualified residential rental projects and to make grants or loans of its own funds (or funds received from another governmental entity) with respect to single or multifamily residential facilities, in order to promote high-quality and affordable housing in the County.
- C. Leverage strategic geographies with federal programs, such as opportunity zones and qualified census tracts, and proactively pursue grants and other funding from federal,

state, and private foundation sources, such as HOME, Emergency Solutions Grants, and State and Federal Housing Trust funds.

- D. Use public and private partnerships, programs, tools, and incentives to address unmet housing needs and increase the County’s capacity to compete for federal, state, and private sector assistance.
- E. Use the EDA to assist with property acquisition, tax exempt bond financing, and leverage gap financing, and stimulate cooperative partnerships toward the preservation and production of housing to address unmet needs.
- F. Work in partnership with nonprofit, public, and private entities that are committed to provide a wide range of housing opportunities by offering technical and financial assistance such as loans, gap financing, tax credits, and grants.

Strategy

- 3.3. Explore offering free or subsidized public land to developers seeking to address the unmet housing need in the County.

Actions

- A. Explore the development of a proactive “public land for public good” program that offers public property to reduce the cost of housing development by reducing or eliminating the land cost.
- B. Explore the establishment of a community land trust/land bank and assemble properties, including tax sale properties, for the construction of housing that addresses the County’s unmet housing needs.
- C. Use public property to offset the land costs to nonprofit and for-profit housing developers seeking to build housing for persons with special needs and/or households earning less than 50 percent AMI.
- D. Promote collocating public facilities with affordable housing.

Strategy

- 3.4. Expand the County’s existing home purchase programs.

Actions

- A. Expand and increase the funding for the Down Payment and Closing Cost Assistance and Public Employee Grant programs to help households earning up to 100% AMI purchase a home.
- B. Create and implement home buyer readiness financial literacy classes to help educate first-time home buyers.
- C. Promote and facilitate the First-time Home Buyers Savings Plan which enables the establishment of a savings plan for the purchase of a home and exempts the earnings on the savings (Code of Virginia Chapter 32, sections 55-555 through 55-559).

- D. Work with employers located in the County to develop workforce housing financial assistance programs such as direct loans, gap financing, revolving loans, credits, and grants.

Strategy

- 3.5. Promote cross-sector collaboration to help address the County's unmet housing needs.

Actions

- A. Facilitate collaboration among residential developers, affordable housing developers, lenders, the Virginia Housing Development Authority, economic development agencies, and transportation officials.
- B. Develop a housing ambassador program to Loudoun's incorporated towns to raise awareness and provide technical assistance to assist them in establishing and maintaining programs that address their unmet housing needs.
- C. Conduct regular focus groups with the building industry, the CEO Cabinet, and major employers.
- D. Convene an Annual Housing Summit to check in with stakeholders on issues and successes.
- E. Coordinate with the Virginia Regional Transit and other transit providers to ensure access to and from housing to jobs and services.
- F. Implement a robust community outreach plan to promote the importance of housing to Loudoun's quality of life and the economy.



*This page left blank for printing purposes.*

# Chapter 5 - Economic Development

## Table of Contents

Vision.....	2
Introduction.....	2
Background.....	3
Trends and Influences.....	5
Local Opportunities and Challenges.....	5
Workforce.....	6
Globalization.....	7
Digitization.....	7
Tourism.....	8
Demographics.....	8
Policies, Strategies, and Actions.....	9

*This page left blank for printing purposes.*

# Chapter 5 - Economic Development

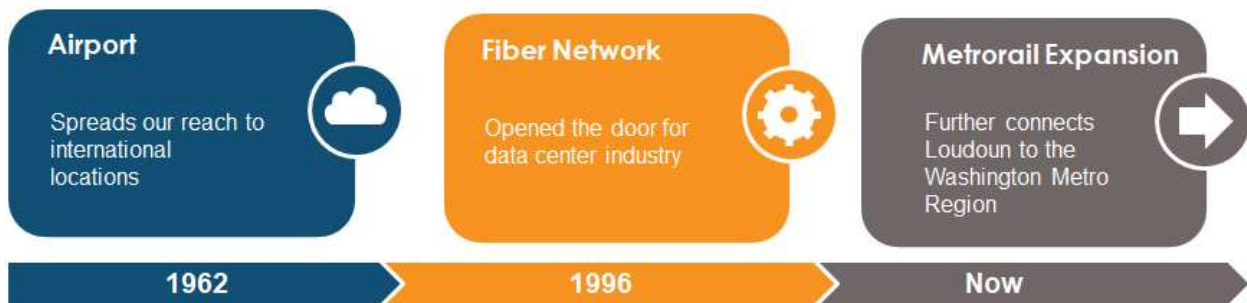
## Vision

A diverse and globally competitive Loudoun economy.

## Introduction

Loudoun County has emerged as a leading hub of economic activity in the Washington, D.C., Metropolitan Area. Two major economic drivers have helped Loudoun’s economy grow exponentially – Washington Dulles International Airport and a world-class digital fiber network – and a third economic driver is on the horizon with the Metrorail extension to Ashburn.

### Three Economic Growth Factors



Growth remains constant in technology sectors such as aerospace, cybersecurity, and data centers. The federal government continues to fuel employment for almost one-third of the County’s rapidly expanding population. Loudoun continues to have a strong agriculture-based business sector, in large part due to the growth of value-added agricultural products. Start-ups and corporations that span all of these burgeoning industries are thriving due to Loudoun’s location in the region, proximity to Washington Dulles International Airport, a highly-educated workforce, and business-friendly local regulations.

Loudoun’s sustained economic growth generates significant local tax revenue from businesses that supports quality schools, parks, public facilities, infrastructure, and low residential tax rates. These assets help create a high quality of life for the County’s residents, workers, and visitors. The list of accolades for Loudoun’s economy is long, however there are eight “number ones” that set the County apart from the rest of the region, nation, and the world:

### Eight Ways Loudoun County, Virginia is No. 1



Sources: U.S. Census, WTOP, MWCOG, SmartAsset, USDA, Loudoun County

The median household income in Loudoun is more than double the state average, and ranks number one nationally for jurisdictions with a population of 65,000 or greater. Part of that can be attributed to having one of the most educated workforces in the country (almost 60 percent have at least a bachelor's degree), as well as one of the lowest unemployment rates in the region.<sup>1</sup>

Loudoun also leads the U.S. in investment for counties of its size.<sup>2</sup> Since the start of Fiscal Year 2014, Loudoun has announced more than 344 deals, representing approximately 13.5 billion dollars of commercial investment and 16,280 jobs created or retained.<sup>3</sup>

Much of this economic growth is fueled by the world's largest and fastest-growing data center hub, which is a strong revenue source for the County's General Fund; for every dollar in services Loudoun County provides for data centers, it receives back more than \$9.50 in tax revenue. Major industry leaders such as Amazon, Verizon Business, Google, Facebook, and Salesforce rely on the connectivity in Loudoun County.

In addition to the technology infrastructure, Loudoun has expanding economic roots in agricultural business, including almost 1,400 working farms. The quantity and quality of breweries, wineries, grapes, bees, and horses outpace all other jurisdictions in the state. This has helped Loudoun develop into a tourist destination, with an annual economic impact from domestic tourism of more than 1.7 billion dollars and approximately 17,000 tourism jobs.<sup>4</sup>

## Background

In 2001, the Board of Supervisors adopted a guiding strategy for a sustainable economy in the County's *Revised General Plan*. This fundamental economic development strategy identified five goals for the Loudoun community: 1) foster a prosperous and diverse business environment, 2) create a globally recognized economy, 3) maintain sound fiscal health, 4) develop an innovative

<sup>1</sup> U.S. Census, 2012-2016 American Community Survey.

<sup>2</sup> International Economic Development Council, 2017.

<sup>3</sup> Loudoun County Department of Economic Development, 2018.

<sup>4</sup> Virginia Tourism Corporation, 2018.

rural economy, and 5) become a world-class visitor's destination. It also identified Loudoun's primary competitive advantages:

- Washington Dulles International Airport;
- Location in the Washington, D.C. Metropolitan Area;
- Qualified workforce skilled in advanced industries;
- Quality of life;
- Infrastructure that enables access to the region; and
- Greenfield land zoned for commercial development.

The County refines its economic strategy regularly with assistance from specialized research consultants.<sup>5</sup> Continually refreshing economic development Policies, Strategies, and Actions is essential since economic climate, county assets and constraints, and projected trends for the future are dynamic.

### Targeted Cluster Strategy

Since 2008, the Board of Supervisors has focused economic development efforts on targeted clusters and overlays of businesses that have the largest employment sectors, demonstrated past growth, or have potential for future gains based on innovations and trends in the market. This economic development approach is based on industries that are more concentrated in Loudoun relative to the state/nation, and industries that are adding firms because of Loudoun's strengths and opportunities. The County's targeted clusters and sub-clusters are:

- Cluster 1. Information & Communications Technology
  - a. Data Analytics and Technology Advancement
  - b. Cybersecurity
  - c. Data Centers
- Cluster 2. Highly Specialized Manufacturing
- Cluster 3. Agricultural Businesses

Overlays that are targeted for business intensification include: (1) major projects, headquarters, and associations; (2) small business and entrepreneurship; (3) international business attraction; (4) existing businesses (retention and expansion); and (5) Metrorail stations.

The Information and Communications Technology (IT) cluster continues to play a major role for Loudoun County in terms of employment, establishments, earnings, name recognition, and potential for future growth. The IT assets that Loudoun has cultivated over the last few decades, including infrastructure (e.g. data centers), workforce, and general economic environment, create a wealth of opportunities within the cluster for continued expansion.<sup>6</sup>

---

<sup>5</sup> Camoin Associates, Atlas Integrated and ACDS are different economic consultants that have helped the County develop marketing, agricultural business, and cluster development strategies.

<sup>6</sup> Camoin Associates, 2017.

The Highly Specialized Manufacturing cluster includes industries and companies that are producing goods that are high-value and specialized in nature and, therefore, typically need to be made in small batches and shipped to their supply chain or final destination quickly. This cluster continues to be an emerging opportunity based on the County’s assets including Washington Dulles International Airport, existing manufacturing companies, a highly skilled labor force, and information technology strengths.<sup>7</sup>

The Agricultural Business cluster is made up of farms that provide value-add agricultural products<sup>8</sup>, traditional commodities, and agri-tourism. With direction and support of the Board of Supervisors, the County’s Rural Economic Development Council (Council) developed a blueprint for strategies that support the agricultural economy. Along with multiple stakeholders, and with the assistance of the County’s Department of Economic Development, the Council crafted the [\*Rural Economy Business Development Strategy\*](#) to guide marketing, research, and education; create financial tools to support agricultural entrepreneurs; provide resources; and inform public policy.

To strategically grow existing industry clusters or develop new ones, the County devotes resources (people and research) to becoming cluster experts that can anticipate the needs of businesses in a targeted cluster. This is achieved proactively through knowledge, relationships, and earned reputation. Cluster experts communicate the County’s competitive advantages for a targeted industry, connect prospective businesses to other businesses or resources in their cluster, and seek solutions to any barriers to entry. The objective is to attract new businesses to the cluster so that the global competitive advantage of Loudoun is strengthened in the targeted industry.

## Trends and Influences

Non-residential forecasts identify that short-term growth will be led by data center development. However, mid to long-term forecasts show data center construction slowing as land and resources become scarce. Diversifying the economic base, creating desirable places to attract new corporate headquarters, investing in the skill set of local workforce, marketing the County on a global scale, and promoting Loudoun as a tourism destination will help maintain a strong community for the next twenty years and beyond.

As part of the *Loudoun County 2019 General Plan* process, the County reevaluated its economic advantages, challenges, and opportunities based on existing local market conditions. Additionally, macro trends were analyzed that will impact economic development in the areas of workforce, globalization, digitization, tourism, and demographics.

## Local Opportunities and Challenges

The IT cluster, which includes data centers, remains a strong local competitive advantage. Northern Virginia has an exceptionally high concentration of tech talent, as measured by the number of civilian employed persons in computer and mathematical occupations—more than

---

<sup>7</sup> Camoin Associates, 2017.

<sup>8</sup> Value-add implies that an agricultural business is taking a raw product and adding value in the manufacturing process to create a different product (e.g. craft beverages).

Seattle and comparable to that in the entire San Francisco/Silicon Valley area. Out of the cities and counties in Northern Virginia, Loudoun County has the highest concentration of people employed in computer and mathematical occupations.<sup>9</sup> Other economic development advantages include: 1) Washington Dulles International Airport and future Metrorail stations; 2) business-friendly local regulations and services; 3) highly-educated workforce and top-notch schools; 4) farms and agri-tourism; 5) affluent and culturally diverse residents; and 6) exceptional quality of life.

Despite the high concentration of tech workers in the region, talent attraction is still one of the biggest challenges that existing and potential Loudoun businesses face. The emerging workforce desires walkable urban places with a mix of amenities and housing types. A recent survey by the County's Nighttime Economy Advisory Committee found that the younger workforce wants 1) special events; 2) arts, cultural, and entertainment districts; 3) attainable and desirable housing; 4) mixed-use and walkability; and 5) multimodal transportation alternatives.<sup>10</sup> Lack of housing options and traffic congestion for commuting has also been cited by many business leaders as a challenge for employee recruitment.<sup>11</sup>

## Workforce

As of 2017, the number of Americans on unemployment rolls has dropped to a 17-year low, which indicates the labor market nationwide is tightening and companies are facing challenges recruiting skilled workers.<sup>12</sup> Some best management practices for economic development organizations to help address the expected talent shortage include: conducting a workforce sustainability study, collaborating with regional educational institutions, and developing industry-specific online portals for jobs.

The labor force participation rate in Loudoun is approximately 77 percent, which is higher than the national rate of 66 percent.<sup>13</sup> Analysis of commuting pattern data illustrates just how interconnected the County's employment and labor force is with the larger region – with the region relying on Loudoun and Loudoun relying on the region for workers and places of employment. Data shows that over 86,000 people come into Loudoun County each day from surrounding areas, over 123,000 Loudoun residents travel out of the County to their jobs, and over 54,000 live and work in Loudoun. The most common home or work location, besides Loudoun County, is Fairfax County.<sup>14</sup> As of 2016, 50 percent of the County's residents were working and living in Loudoun, which is a steady increase from approximately 41 percent in 2000.<sup>15</sup>

Self-employment in Loudoun accounts for approximately 7 percent of all employment; this is higher than within Maryland and Virginia (5.5 percent) and slightly higher than the rest of the nation (6 percent). Most of the self-employed individuals are government contractors and/or in the

---

<sup>9</sup> U.S. Census, 2012-2016 American Community Survey.

<sup>10</sup> Loudoun County Nighttime Economy Advisory Committee, 2016.

<sup>11</sup> Loudoun County Department of Economic Development, Business Community Interviews, 2017.

<sup>12</sup> U.S. Bureau of Labor Statistics, 2016.

<sup>13</sup> U.S. Census, 2012-2016 American Community Survey.

<sup>14</sup> Camoin Associates, 2017.

<sup>15</sup> U.S. Census, 2012-2016 American Community Survey.



IT sector. Opportunities exist to encourage new start-ups and transition willing and interested companies from self-employment/sole-proprietorship to employing staff, which will support innovation, research and development, and job growth in the county.<sup>16</sup>

Loudoun County is home to seven institutions of higher education providing undergraduate, graduate, and continuing education opportunities. These include: George Washington Virginia Science & Technology Campus, George Mason Enterprise Center, Virginia Tech Equine Medical Center, Shenandoah University, Northern Virginia Community College, Strayer University, and Patrick Henry College. Local universities and colleges have partnered with local businesses and organizations to provide places for business ideas to incubate and grow, expand research and development opportunities, and provide targeted educational training opportunities. This continued collaboration strengthens the partnerships among government, business, universities, and public schools to ensure continued development of Loudoun’s highly skilled workforce.

As part of an international strategy, attracting immigrants to the workforce helps ensure a steady flow of skilled and unskilled workers. Loudoun County is well on its way to diversifying its local employment base, as one out of every four residents are foreign-born.<sup>17</sup>

## **Globalization**

The County’s economic development strategies need to be prepared for the global economy. One in five American jobs are tied to international trade, and 95 percent of consumers – three-quarters of the world’s purchasing power – is found outside United States borders.<sup>18</sup> Locally, the percentage of Loudoun’s gross domestic product devoted to exports (9.9 percent) is top five for the Greater Washington area. Loudoun is also top five in Greater Washington for numbers of jobs in foreign establishments.<sup>19</sup>

Best practices for increasing foreign direct investment, attracting international companies, and recruiting international workforce are straight-forward: devote full-time staff to international trade missions and developing leads and recruiting abroad. Furthermore, globalization is no longer confined to the coastal cities, so the future domestic workforce (students) should be prepared early by emphasizing foreign studies and learning different languages.

## **Digitization**

Digitization of the local government development process has become standard for larger local jurisdictions, which helps businesses start and expand easier and faster. Electronic plan submittals, business license portals, and online permit or entitlement tracking increase accountability and provide more certainty for the business community.

The continual shift to digital information, communication, and transactions results in steady demand for data storage infrastructure and IT workers. Loudoun is thriving in both business areas as 30 percent of the world’s physical data center buildings are in Loudoun County, and the

---

<sup>16</sup> Ibid, 2017.

<sup>17</sup> U.S. Census, 2012-2016 American Community Survey.

<sup>18</sup> The Trade Partnership, 2015.

<sup>19</sup> Brookings, 2014.

concentration of employees in IT as it relates to total County employment is stronger than the IT cluster in the states of Maryland and Virginia combined.

## **Tourism**

Tourism and economic development are inextricably linked, as visitors to desirable destinations become repeat visitors, which can lead to relocation, entrance into the workforce, and potentially moving or starting a business. Loudoun County's tourism industry is thriving and ranks third in overall visitor spending in the Commonwealth with \$1.69 billion in 2016.<sup>20</sup> Loudoun is uniquely situated in the Washington, D.C., region due to its agricultural economy in the western half of the County that also supports regional tourism. Northern Virginia generates the most agri-tourism revenue of the 10 regions within the Commonwealth, contributing more than \$552 million to Virginia's \$2.2 billion agri-tourism industry. Loudoun County farm businesses make up 51 percent of Northern Virginia's agri-tourism venues.<sup>21</sup>

Best management practices for aligning economic and tourism development include using consistent "destination" branding across multiple lines of government, building recognition for year-round activities, and identifying the local community as a progressive tourism destination in marketing materials to business prospects.

## **Demographics**

The generation still entering the workforce is the biggest cohort in United States history.<sup>22</sup> The demographic shift brings changes in consumer spending, office amenities needed to attract workforce, housing preferences, and political ideologies. In general, the newest generation of workers are unique because of technological aptitude and reliance, propensity towards social tolerance, and high educational attainment.<sup>23</sup>

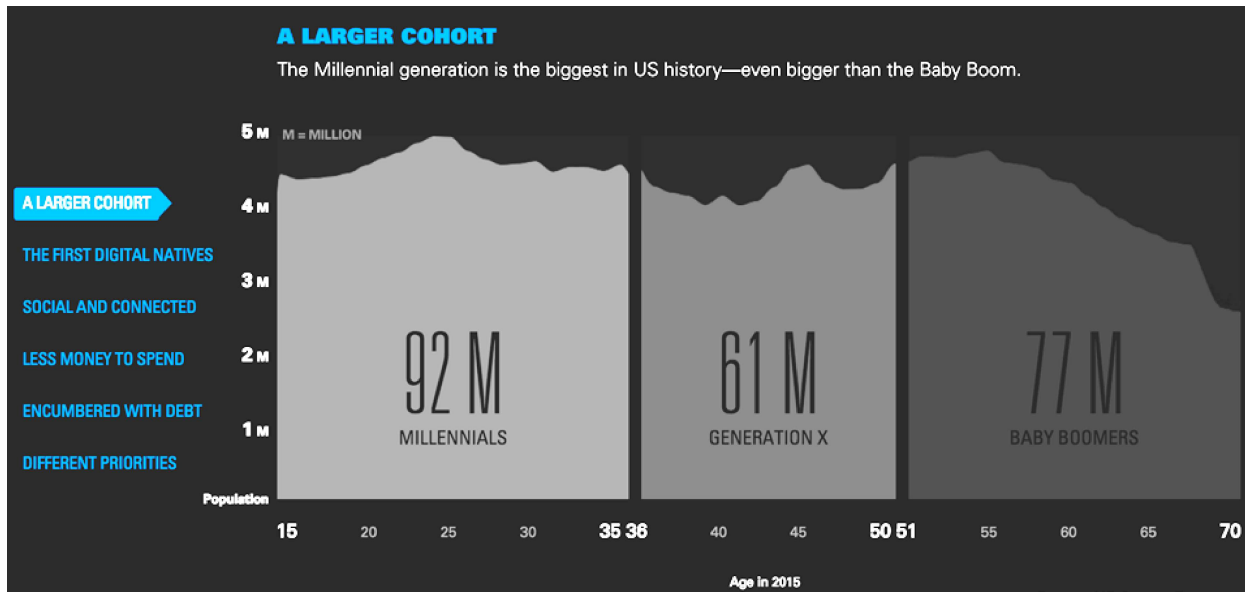
---

<sup>20</sup>U.S. Travel Association, 2016.

<sup>21</sup> Virginia Tech, 2017.

<sup>22</sup> Business Insider, 2015.

<sup>23</sup> Pew Research, 2015.

**Figure 3. Population Comparison of Recent Generations**

Source: *Business Insider*, 2015

Most innovative companies looking to attract the next generation of workers are seeking “urban” places for their expansion or relocation efforts because they cluster offices, retail, entertainment, cultural attractions, services, and housing options in close proximity. The emerging workforce desires this amenity-rich environment and expects transportation options such as walking, biking, or transit for commuting or consuming daily goods and services. Transit-oriented developments in Northern Virginia have seen remarkable growth, and Loudoun County is poised to capture this trend with the opening of the new Metrorail stations.

The key demographics of Loudoun County, including the growing population, lower median age, high education levels, and high income levels present opportunities to support a variety of well-paying knowledge and skills-based industries in addition to creating the demand for high-quality place and related amenities. Being able to attract and retain employees in Loudoun County will ensure companies will continue to choose Loudoun for their business.

## Policies, Strategies, and Actions

The following Policies, Strategies, and Actions help achieve the County’s economic development mission and vision, as well as the overall economic development priority set by the Board of Supervisors to grow the commercial tax base.

Across all departments and within each economic development policy emphasis is placed on providing a stable and predictable business environment through customer-focused solution-oriented public service. Unless otherwise specified, the Policies, Strategies, and Actions apply Countywide.

## Policy I: Diversify the economy by strengthening targeted industry clusters.

### Strategies

- 1.1. Attract new businesses in key industries so that the global competitive advantage of Loudoun is strengthened in the targeted industry clusters.
- 1.2. Work with existing businesses proactively and retain businesses that may be considering leaving Loudoun by helping with relocation or expansion efforts.
- 1.3. Catalyze start-ups and entrepreneurial growth by providing quality resources.
- 1.4. Continue to sustain economic growth at and around the Washington Dulles International Airport and the Leesburg Executive Airport, including support of land use restrictions in noise-sensitive areas located within the Ldn 65 or higher noise contours.
- 1.5. Expand international relationships and attract foreign businesses within targeted clusters.

### Actions

- A. Embed staffing resources in each cluster/overlay to attract or expand businesses using industry expertise, relationships, and earned reputation.
- B. Use marketing and research to create promotional materials, conduct market analysis, assist with site selection, and provide ombudsman services.
- C. Provide assistance with the regulatory process and streamline when possible using electronic plan submittals and online portals to get clients to market more quickly, provided all public safety, health, and welfare regulations are met.
- D. Create mechanisms for the rural economy to maintain its status as a regional agricultural leader and local advantage.
- E. Focus on providing resources, networking/education events, and other programs to startup companies that place a high value on growth, including assistance with establishing additional incubators, accelerators, co-working spaces, and makerspaces.
- F. Reserve adequate amounts of developable commercially-zoned land for growth of targeted industry clusters.
- G. Strategically use economic incentives as needed for attraction and retention.
- H. Ensure new development does not create flight obstructions, or otherwise impede flight operations at Washington Dulles International Airport and Leesburg Executive Airport, notwithstanding building and height standards recommended elsewhere in the Comprehensive Plan.
- I. Implement regulations to require a development that is subject to Federal Regulation 14 CFR Part 77 to provide the County with certification from the Federal Aviation Administration (FAA) that it will not constitute a hazard to air navigation, and to comply with any recommendation(s) found in an FAA decision that results in a no hazard determination.

## Policy 2: Create desirable places in key corridors and employment centers.

### Strategies

- 2.1. Ensure that the design and infrastructure of key economic corridors and employment centers creates desirable places for workers, businesses, residents, and visitors.
- 2.2. Support development projects near the Ashburn and Innovation Metrorail stations that provide a continuum of housing types, retail, entertainment, and employment options in a walkable environment.
- 2.3. Be flexible, customer-focused, and timely in review and approval of commercial or mixed-use projects to keep pace with business innovations and reduce time to market.
- 2.4. Encourage multimodal infrastructure design, especially within biking distance of Metrorail stations and near other employment and major hotel centers, which minimizes impact to development potential of land.
- 2.5. Support a diversity of available commercial products to improve attraction of a multifaceted business base.
- 2.6. Accommodate all types of critical infrastructure when planning and designing for transportation; complete streets, power, water, and fiber.

### Actions

- A. Establish “Technology Zones” for the encouragement of new and expanding technology businesses through tax incentives and regulatory flexibility.<sup>24</sup>
- B. Periodically update the County’s zoning regulations and design standards to keep pace with innovation in the marketplace.
- C. Extend support to the Towns to plan for enhancing the economic base.

## Policy 3: Invest in the skilled workforce needed for continued economic growth.

### Strategies

- 3.1. Support continual growth of the workforce through recruitment assistance, training, and placement programs.
- 3.2. Proactively attract workforce, develop existing pipeline, and explore ways to increase access to qualified job applicants in targeted clusters.
- 3.3. Cultivate partnerships with schools, colleges, and businesses to link all levels of education (including K-12) to targeted industry needs.
- 3.4. Develop housing programs to create a continuum of housing types that are attainable and desirable to all levels of the workforce.

---

<sup>24</sup> Code of Virginia § 58.1-3850. Creation of local technology zones.

Actions

- A. Collaborate with community and academic partners on connecting people to careers, expanding “learn by doing” programs, securing funding sources for training, and developing vocational training and industry certification and degree programs.
- B. Actively engage local businesses to determine workforce challenges and needed skills.
- C. Develop programs to incentivize construction of attainable workforce housing.
- D. Consider using the Economic Development Authority for property acquisition to bank land for public-private partnerships on workforce housing projects.

**Policy 4: Market the County as a world-class business ecosystem.**

Strategies

- 4.1. Market the County as a world-class place to do business using a variety of tools and communication platforms.
- 4.2. Promote gender and ethnic diversity of the local business community.
- 4.3. Market Washington Dulles International Airport as a destination portal to a diverse Loudoun economy.

Actions

- A. Tailor messaging to decision makers and influencers who play a role in starting, expanding, or relocating businesses (e.g., owners, executives, site selectors, or brokers).
- B. Post and respond on the County’s economic development website and social media channels in a timely fashion to maintain credibility.
- C. Maintain economic development brands for custom professional-grade collateral.

**Policy 5: Support the promotion and development of Loudoun County as a tourism destination.**

Strategies

- 5.1. Collaborate with Visit Loudoun to support the development and enhancement of tourism and hospitality infrastructure, including hotels, bed and breakfasts, event facilities, and cultural attractions.
- 5.2. Encourage and support tourism destination development and marketing.

Actions

- A. Establish “Tourism Zones” that would enable the County to provide tax incentives and regulatory assistance, and would provide a mechanism to assist developers of authorized tourism projects to obtain gap financing and make payments thereon.<sup>25</sup>

---

<sup>25</sup>Code of Virginia § 58.1-3851. Creation of local tourism zones.

- B. Refresh online content and optimize for search engines regularly, translate into multiple languages, and focus design to reflect Loudoun's unique personality and strengths.

# Chapter 6 - Fiscal Management & Public Infrastructure

## Table of Contents

Vision.....	2
Introduction.....	2
Public Facilities.....	3
Open Space Assets .....	6
Utilities & Infrastructure.....	9
Fiscal Management.....	11
Policies, Strategies, and Actions.....	14
Reference Maps.....	29



*This page left blank for printing purposes.*

# Chapter 6 - Fiscal Management & Public Infrastructure

## Vision

Provide high quality, efficient, and environmentally sensitive infrastructure systems supporting growth management goals and delivering innovative services to the community.

## Introduction

Sustained growth since 2000 requires Loudoun County to meet a significant demand for new public facilities, such as parks and recreation, fire and rescue, and schools. While the County has maintained a reputation for quality facilities and services and sound fiscal management, funding and competing priorities have led to a shortfall or delay in certain public facilities. As the County has grown, the increasing scarcity of land and the diversity of facility and service needs has further affected the County's ability to meet demands. Service providers have employed various measures to adapt to these challenges. Schools are being designed to fit on smaller parcels. Libraries are sharing commercial space in Brambleton and Stone Ridge and Sheriff's Office substations co-locate with Fire and Rescue stations. The *Loudoun County 2019 Comprehensive Plan* (Comprehensive Plan) supports continued innovation, particularly in co-location and site design to not only add new facilities but to better adapt to changing community design, particularly in compact mixed use and transit-oriented developments.

Loudoun County maintains close connection between land use and fiscal planning. Managing utilities, principally sewer and water, has directly influenced where new development occurs. Consistent policies and close collaboration with Loudoun Water has allowed the County to maintain an urban growth boundary and to subsequently focus other investments in roads and public facilities in eastern Loudoun. Loudoun Water's strategy for a long-term water supply and its investment in high-quality water and sewer treatment has provided the County with a strong basis for growth decisions. The Comprehensive Plan does not address the fiscal management and operational priorities of entities that operate key utilities serving County residents but are independent of the County. Nonetheless, the cooperative relationship between the Board of Supervisors (Board), Loudoun Water, the Virginia Department of Health (VDH), the Virginia Department of Environmental Quality (DEQ) and other entities continues to ensure a close connection between infrastructure and land use planning.

The County's fiscal policy requires the Board to adopt a ten-year Capital Needs Assessment (CNA) every four years and adopt a six-year Capital Improvement Program (CIP) during the Board's budget deliberations. The annual CIP funding plan and budget then align annual capital expenditures with County fiscal policy. The County has relied on proffers to mitigate capital and transportation costs, consistent with the authority granted through state enabling statutes. That funding mechanism has proven less effective in recent years due to state-imposed constraints on use of proffers as well as a changing development environment. The Comprehensive Plan supports the continued use of proffers and proposes changing the calculation of capital facilities impacts to address transportation needs and expanding the proffer process to the Transition Policy Area. The

Plan also encourages the Board to seek legislation authorizing a reasonable impact fee program that would apply to all residential building permits throughout the County.

Loudoun County maintains a strong commitment to preserving open space and agricultural land and protecting natural, environmental, and heritage resources. Conservation easements in 2018 protect over 72,000 acres of land throughout the County. The County holds over 26,000 acres of these easements. Over the years, County policies have emphasized preserving open space in its natural setting, undisturbed, to protect the environmental value of the space. The Comprehensive Plan recognizes the community desire and economic value to expanding public access to and enjoyment of open space through trails and recreational uses. A key objective is to create a connected network of parks, trails, and natural areas, which can offer expanded environmental, design, and recreational benefits.

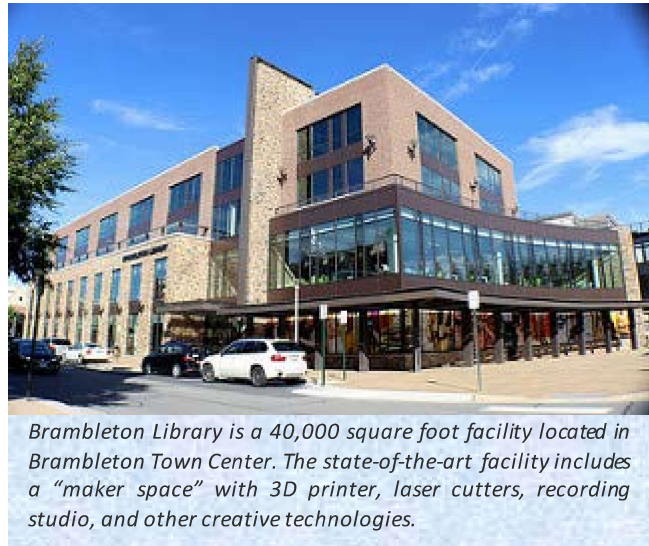
## Public Facilities

The County’s fiscal management strategy is designed to anticipate and accommodate the impacts of increased demand for public services and facilities. As discussed in the Fiscal Management section of this chapter, careful development forecasting—including its location, type, and timing—is essential to anticipating facility needs. The County projects the capital needs associated with development proposals to determine expected impacts on public facilities and to calculate anticipated contributions to mitigate a project’s “fair share” of those impacts. Major components of the land use picture in Loudoun are public schools, parks and recreation, libraries, and emergency services. These important elements of the community fabric typically require land proximate to new development.

### Loudoun County Public Library

Loudoun County Public Library (LCPL) is the information center of the community, providing free and equal access to innovative technologies and a full range of library resources to enhance the quality of life and meet the informational, educational, and cultural interests of the entire community. LCPL provides library materials, programs, technology, and services. It promotes the joy of reading and lifelong learning through early literacy programs, teen initiatives, humanities and arts events, technology training, and other educational opportunities.

LCPL currently has ten branches ranging in size from 4,000 square feet to 42,000 square feet. The Ashburn, Cascades, Lovettsville, Middleburg, Purcellville, and Rust branches are standalone facilities, while Gum Spring, Law Library, Brambleton, and Sterling share structures with businesses or other County facilities. LCPL Administration shares space in Leesburg with the Leesburg Senior Center.



*Brambleton Library is a 40,000 square foot facility located in Brambleton Town Center. The state-of-the-art facility includes a “maker space” with 3D printer, laser cutters, recording studio, and other creative technologies.*

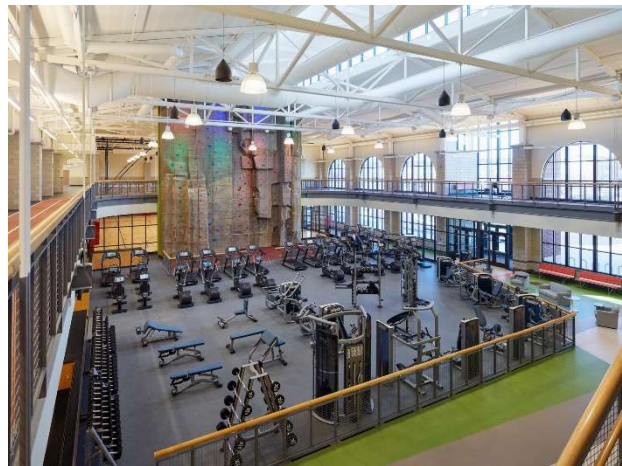
LCPL continues to evolve to meet the needs and expectations of the community. The Library is expanding language learning services to non-native speakers. It also offers more Science, Technology, Engineering, and Math (STEM) programs, which are complemented by “maker spaces” that include 3D printers, robotics, recording studios, design software, computer labs, and other equipment for creating and learning. High-speed wireless internet access is essential to customers and is available at every facility. In addition, demand for conference and study rooms continues to rise; thus large, multi-purpose rooms are an essential component for current and future branches. Also, as the number of residents without personal transportation increases, locations that offer ease of access through public transportation are increasingly important.

LCPL recognizes the need to locate in high community activity areas and adapt to the County’s changing development patterns. For example, in recent years LCPL has opened facilities in commercial space in Brambleton Town Center and in Stone Ridge. Libraries have also located with or near senior centers, parks, and schools. Library programming is similarly evolving to accommodate community activities and educational programs that meet new needs of area residents.

## Department of Parks, Recreation, and Community Services

The Department of Parks, Recreation, and Community Services (PRCS) operates a system of County-owned or maintained facilities that includes over 1,700 acres of open space, more than 60 miles of trails, 200 athletic fields, 27 parks (including three regional parks), 18 playgrounds, 10 community centers, six sports complexes, two indoor and two outdoor swimming pools, four historic/heritage sites, three adult day centers, and three senior centers. PRCS also operates a senior activity center, a recreation center, a nature preserve, a nature center, a performing and visual arts center, an industrial catering kitchen, and administrative offices.

PRCS and Loudoun County Public Schools cooperatively offer activities at County school sites. Programs and services comprise childcare, preschool, after-school care, sports and recreation, community outreach, aging services, youth services, adaptive recreation, summer camp, health and fitness, planning and development, facility maintenance, customer service, and environmental stewardship. Offerings include sports activities for youth and adults, instructional and interpretive classes, programs for senior citizens, visual and performing arts, child care, preschool, after school activities, trips, camps, special events, volunteer opportunities, educational and prevention programs for youth, and programs for individuals with disabilities. In 2018, annual park visits for special events totaled 875,000. Over 55,000 children participated on sports teams and over 156,460 meals were served to senior residents.



*Dulles South Recreation and Community Center features the latest fitness equipment, climbing wall, competition swimming pool, leisure pool with lazy river, vortex, 125-foot slide, hot tub, sports courts, and indoor jogging track. The Center also offers licensed preschool classes, full-day childcare, after-school programs, summer camps, trips, and other recreational opportunities.*

PRCS faces significant challenges securing additional parks and trails to meet the service demands of the County's growing population. A lack of available land in eastern Loudoun, where the facilities are needed most, complicates the County's ability to provide the desired facilities. A decreasing supply of land also means rising land values, which affects contributions of land for parks facilities. Changing development patterns in eastern Loudoun, such as the urban development around the Metrorail stations and other high-density developments, will require new recreation concepts. Changing demographics will likewise necessitate new types of facilities. For example, the population of residents 55 years and older increased nearly 50 percent from 2010 to 2016, resulting in higher numbers of older adults seeking not only recreational programs, but also other support services. PRCS offers community outreach events and increasingly serves as a conduit for a variety of services to the senior population.

## Loudoun County Public Schools

Loudoun County Public Schools (LCPS) is the third largest school division in the Commonwealth of Virginia. Each year, approximately 2,500 new students enroll and one-to-three new school facilities are opened to accommodate them. In 2018, LCPS served more than 83,000 students in 92 facilities including 15 high schools, 16 middle schools, 57 elementary schools, and four special purpose schools (Academy of Engineering and Technology, Academy of Science, C.S. Monroe Technology Center, and Douglass School).



*Loudoun County Public Schools employs 11,577 people, including 10,900 school-based staff and 710 non-school based and administration staff.*

The LCPS student Class of 2017 had an on-time graduation rate of 95.5 percent and earned more than \$54.7 million in scholarships. The

Virginia Department of Education reports that 100 percent of LCPS schools were fully accredited in 2017. The student body is ethnically and economically diverse, with 52 percent of the population reporting as African American, Asian, Hispanic, or multi-racial. Approximately 19 percent of the student population is identified as economically disadvantaged. This cultural and economic diversity raises the need for a variety of academic and extracurricular programs to assist students, particularly in elementary schools, which have the highest percentage of economically challenged students.

Increasing demand for services is placing significant pressure on the school system, which each year must hire hundreds of additional classroom teachers and staff, expand support systems, and open multiple new schools. Families continue to endure shifting school boundaries as new students are assimilated into the school system. Securing building sites for new schools that are cost-effective but that also reflect their important social and civic functions in terms of location and design is an ongoing challenge. Changing development patterns in eastern Loudoun further complicate these issues. In the past, the County has relied on the donation and timely delivery of proffered school sites from the development sector. However, the supply of sites has not kept up with demand or with the LCPS construction timetable.

Urban development around the Metrorail stations and other high-density developments will require innovative designs for new school facilities using less land and more vertical designs. Alternative school configurations that established urban communities have used successfully, such as shared space and public/private facilities, will become increasingly important.

As the population increases and continues to diversify, schools will likely continue to play a larger community role, such as accommodating a variety of non-school activities, sharing recreational facilities with the public, co-locating with compatible uses such as libraries, affordable housing and other services, and opening classrooms and space to other organizations.

## Loudoun County Fire and Rescue

Loudoun County Fire and Rescue (LCFR) delivers essential emergency and non-emergency Fire and Emergency Medical Services (EMS) from 19 stations, responding to more than 29,000 incidents annually. LCFR, as part of the Loudoun County Combined Fire and Rescue System (LC-CFRS), provides administrative, operational, and logistical support to the County's 15 volunteer fire-rescue companies, the LC-CFRS Executive Committee, and its governance structure. Through the Oliver Robert Dubé Training Academy, LCFR coordinates the delivery of certification and continuing education programs for all LC-CFRS members. LCFR functions as the Public Safety Answering Point (PSAP) for the County's 9-1-1 system and operates the County's emergency communications system. The Fire Marshal's Office (FMO) has a multifaceted mission that includes fire prevention; fire lane plans review; life safety education; community risk reduction; investigation of fires, explosions, and hazardous materials releases; and an oversight of the bomb squad.



*The Loudoun County Combined Fire and Rescue System represents a joint effort of volunteer and career personnel responding to emergency incidents 24 hours a day.*

LCFR has been in a consistent state of transition as the County has grown, moving from an all-volunteer system to a combined system, serving an increasingly suburban environment, and responding to growing service demands. As areas of the County transition to a more urban development pattern, LCFR will continue to adapt to different demands and environments. Compact and higher density development and the introduction of Metrorail will affect emergency response times and equipment and training needs, and introduce other new challenges. In rural Loudoun, ongoing areas of attention will include updating existing stations and meeting service demands associated with growth in the rural economy.

## Open Space Assets

Open space assets as defined in this chapter include linear parks, trails, recreational areas, and passive open space. These assets make up much of the County's network of natural resources and

may be held in private or public ownership. The County, conservation partners, and individual property owners manage these elements through the regulation of protective buffers, performance standards, and stewardship of open space easements

The open space assets addressed by this Chapter are aimed at enhancing and encouraging public interaction with the County's network of natural resources through:

- a. A network of linear parks and other recreational resources along or extending from the banks of the Goose Creek, Broad Run, Bull Run, Catoctin Creek, Potomac River, and other river and stream corridors to form an interconnected system of linear open space.
- b. Trails within and among communities that offer potential for walking and bicycling, and connecting neighborhoods to parks, schools, and other community destinations.
- c. Forested areas along public rights-of-way, within neighborhoods, and elsewhere to filter air pollutants, provide shade, screen uses, and define communities and places.
- d. A network of active and passive parks of various sizes and functions throughout each community to beautify neighborhoods and offer opportunities for recreation.



*Elizabeth Mills Riverfront Park consists of over 100 acres of passive parkland with access to the Potomac River and Goose Creek.*

## **NOVA Parks**

NOVA Parks is a regional park authority that is steward to over 12,000 acres of parkland in Northern Virginia, with over 3,800 acres within Loudoun County making a significant contribution to recreation and open space in the County. NOVA Parks' 16 Loudoun offerings include a large portion of the W&OD Trail, a working farm, two golf courses, a group camping site, a water park, and several historic properties. Annually, millions enjoy a ride or walk along the 45-mile W&OD Trail, which is a recreation and transportation artery for visitors and commuters year round. Many thousands camp, hike, boat, golf, swim, or otherwise spend their time in a regional park. Many of NOVA Parks' lands were acquired with the idea to preserve shoreline properties. With over 30 miles of river frontage, many of NOVA Parks' land holdings are among the most environmentally important areas and, with 12 parks region-wide with water access, its parkland is a hub for boating in and around the area.

NOVA Parks is the only regional park authority in the commonwealth and excels at partnerships. Three Counties and three Cities support the regional park system: Loudoun, Arlington, and Fairfax Counties, and the Cities of Alexandria, Fairfax and Falls Church. NOVA Parks' foundation of conservation, enterprise, and regionalism has served the public since 1959. As a public sector government agency, only 13% of operating revenue comes from tax dollars; the rest is generated from enterprise operations. Its member jurisdictions contribute \$1.89 per capita for operating support.

NOVA Parks' contributions to parks, open spaces, and trails in Loudoun County include:

**Aldie Mill Historic Park.** Aldie Mill offers visitors and students a glimpse of life during a time when the Mill served as a vital center of the community. Aldie Mill emerged as the largest manufactory of its kind in Loudoun County and survives today as one of the best preserved historic mills in the Commonwealth.

**Algonkian Regional Park.** Loudoun County joined NOVA Parks in 1973, after NOVA Parks purchased 511 acres of land along the Potomac River that became Algonkian Regional Park.

**Ball's Bluff Battlefield Regional Park.** Preserves the site of the largest Civil War engagement in Loudoun County.

**Battle of Upperville/Goose Creek Bridge Historic Park.** In 2017, NOVA Parks acquired the Battle of Upperville/Goose Creek Bridge Historic Park, not far from Mt. Defiance.

**Blue Ridge Regional Park.** Located on the eastern slope of the Blue Ridge Mountains, this property offers an escape to the mountains for group camping.

**Brambleton Regional Park and Beaverdam Reservoir Park.** Loudoun Water has partnered with NOVA Parks to manage recreational activities and public access at Beaverdam Reservoir. When completed, the park will be among the largest NOVA Parks facilities offering rowing, a public boat launch, and an 8-mile hiking trail.

**Gilbert's Corner Regional Park.** Immediately adjacent to the Mt. Zion property is Gilbert's Corner Regional Park, which was the site of Civil War history.

**Mt. Defiance Historic Park.** Through a partnership with the Civil War Trust, NOVA Parks acquired Mt. Defiance Historic Park outside of Middleburg, a key point of the Battle of Middleburg.

**Mt. Zion Historic Park.** Mt. Zion Old School Baptist Church, built in 1851, sits at the intersection of the Old Carolina Road and the Little River Turnpike. The church was an eyewitness to much of the history of this area, in particular the Civil War.

**Red Rock Wilderness Overlook Regional Park.** This park is home to several historic buildings, native plants and wildlife, and scenic vistas of the Potomac River.

**Rust Nature Sanctuary and Manor House.** In 2013, NOVA Parks and the Audubon Naturalist Society entered into a partnership to manage Rust Sanctuary. The sanctuary has nature trails, event space, and education programs.

**Seneca Regional Park.** 104 acres of this park are located within the County at its border with Fairfax County. The park includes the remnants of George Washington's Potowmack Canal and is bisected by the Potomac National Heritage Trail.

**Springdale.** Located on the Potomac River, this 150-acre land holding with historic antebellum structures will become Springdale Regional Park as funding becomes available.



## Utilities & Infrastructure

### Sewer and Water (See also Chapter 2, Towns and JLMA)

On May 27, 1959, the Board took action to create the Loudoun County Sanitation Authority as a public body politic and corporate under the provisions of the Virginia Water and Waste Authorities Act. This body, now known as Loudoun Water, is chartered by the State Corporation Commission and is responsible for providing water and wastewater service to unincorporated areas of Loudoun County. As a political subdivision of the State, Loudoun Water is not a department of the County government and receives no tax money from the County. All Loudoun Water income is received from customers as payment for water and sewer service or as connection (tap) fees from land developers. Loudoun Water is governed by a Board of Directors consisting of nine members, each appointed by the County Board. Members of the Loudoun Water Board of Directors serve four-year terms and can be reappointed.

Loudoun Water owns and operates water and wastewater treatment facilities and systems and has purchased capacity for wholesale water supply from Fairfax Water and wastewater treatment from DC Water. These water and wastewater systems serve the eastern region of Loudoun County. The Potomac River is the primary source of water for Loudoun County and the greater Washington, D.C. Metropolitan Area. Loudoun Water further benefits from using the Goose Creek and Beaverdam Creek Reservoirs, and may use reservoirs created from retired rock quarries for storage in the future. With numerous water supply sources and local reservoirs, Loudoun Water has a resilient system to meet the demand for safe and healthy drinking water. To ensure the overall environmental quality of the water supply (watersheds and aquifers), Loudoun Water supports broad-based source water protection, management, and stewardship programs.



*Loudoun Water's plans to ensure an adequate supply of quality drinking water for a growing population include utilizing retired rock quarries to store up to 8 billion gallons of water.*

In the western region of the County, Loudoun Water currently owns and/or operates smaller water and wastewater treatment systems. Community water and wastewater systems are freestanding systems usually serving residential developments that were installed by developers and are now operated and managed by Loudoun Water. These systems are also funded in part by the County, which has an active program of rectifying public health issues in a number of historic villages. There are additional expenses and inefficiencies associated with building and operating such systems and historically the cost was borne by the relatively few system users. In April 2016, the Loudoun Water Board of Directors adopted a single rate for all customers; that is, those served by the central facilities as well standalone community systems, the costs of which are materially greater to install and operate. Land use policies going forward need to recognize the added cost burden that central system customers bear due to standalone community systems.

Incorporated towns in the County operate their own municipal water and sewer systems. Water is drawn from springs or wells and, in the case of Leesburg, also drawn from the Potomac River.

Leesburg, Hamilton, and Round Hill have extended utilities into the surrounding Joint Land Management Areas (JLMA). The Comprehensive Plan does not recommend extending municipal systems into adjacent rural areas except when necessary to resolve public health issues in existing communities.

Loudoun Water’s Capital Improvement Plan (CIP) is a 10-year roadmap for creating, maintaining, and funding present and future infrastructure needs.<sup>1</sup> The Loudoun Water CIP is approved by the Loudoun Water Board of Directors. Capital water and wastewater improvements are complex and interrelated and often require a great deal of planning over many years to define their extent, location, and cost. The underlying strategy of the CIP is to plan for facilities necessary for the safe and efficient delivery of water, wastewater, and reclaimed water services in accordance with policies, goals, and objectives adopted by Loudoun Water. A critical element of a balanced Capital Improvement Plan is to preserve and enhance existing facilities as well as provide new assets to respond to growth of the community and changing service needs as outlined in the Comprehensive Plan and other Board policies.

## **Waste Management**

The Loudoun County Department of General Services, Waste Management Division operates the Solid Waste Management Facility (“landfill”) and provides recycling opportunities for residents and businesses. Landfill operations are fee-supported. The County also offers recycling drop-off centers, household hazardous waste collection events, collection of seven materials for recycling or diversion at the landfill, and educational programs. The County anticipates continuing operations at the Evergreen Mills Road landfill site and relying on continued recycling and commercial facilities to redirect a significant amount of waste material. International demand for recycled material is, however, a key factor in the success of recycling programs. Continued review and updating the County’s Solid Waste Management Plan will provide the more detailed management and planning necessary to meet State requirements to anticipate future needs.

## **Energy and Communication**

Electrical demand in the County has grown dramatically in recent years with the development of data centers in eastern Loudoun. Demand is expected to continue to grow with new data center construction, the operation of the Silver Line Metrorail, and other land development. Changes in data center technology have resulted in electrical demand increasing from 100 watts up to 300 watts per square foot. Demand for data center development within the County is anticipated to be strong for the foreseeable future.

Electrical and communication services are provided under the purview of state and federal agencies. This limits the County’s ability to mitigate certain impacts. For example, the County regulates the location of electrical substations but not the high voltage distribution lines to and from the substations. Similarly, the County may review the location of cell towers and monopoles for impacts on surrounding properties, but cannot prescribe locations and, therefore, cannot require broadband or communication service in underserved areas. The County does, however, work with the providers to encourage improved service and locations.

---

<sup>1</sup> The Loudoun Water Capital Improvement Plan can be accessed at [www.loudounwater.org](http://www.loudounwater.org).

Rather than a centralized, regional substation to serve the County’s growing electrical demands, smaller substations have been constructed for individual providers. As demand for electrical power continues, consideration should be given to the appearance of substations and power lines and adequate screening of these facilities to reduce the visual impact upon the community.

Broadband internet service is an increasingly important asset to business in Loudoun as e-commerce grows throughout the nation. The lack of broadband service in western Loudoun is cited as a major constraint on the rural economy. It also puts western households and students in particular at a disadvantage. County efforts to extend broadband service have included regulatory changes to support new technologies. With limited control over market factors and federal regulation, the County will encourage landowners to put in place the conduits and other infrastructure to help minimize the cost of extending the service, and will explore other incentives to encourage network expansion.

## **Fiscal Management**

Loudoun County uses an integrated approach to land use and fiscal planning. This approach uses economic and demographic forecasting models, as well as service and facility standards, to help determine current and future capital facilities needs in the County. The Board established Loudoun County’s Fiscal Impact Committee (Committee) in 1992. This advisory committee reviews assumptions about future growth and capital facility needs. The Committee provides recommendations to the Board on four key documents that the County uses to coordinate land use and financial planning: 1) long-range forecasts and demographic, economic, and financial information included in the Fiscal Impact Committee Guidelines; 2) Capital Facility Standards (CFS); 3) CNA; and 4) Capital Intensity Factors (CIF).

The capital facility planning and budgeting processes are different, but completely interrelated. CFS, CNA, and CIF are the three main aspects of the capital facility planning process that shape the CIP budget. The capital planning processes are integral in the development of:

1. Capital-facility-related cash, land, and other in-kind proffer dedications to the County as a result of land use applications;
2. The development of the type, timing, and geographical placement of capital projects to be considered for funding in the CIP; and
3. The programmed use of proffers for capital facility development in the CIP.

## **Capital Needs Assessment**

The CNA divides the County into ten planning subareas and uses the County’s forecasted population growth and adopted CFS to identify the type and quantity of facilities needed in each subarea. The CNA time period extends for ten years beyond the most recent CIP period. Using the population standards set by the CFS and factoring in facilities that already exist or are funded in the CIP, the CNA determines which facilities are needed to meet the adopted CFS standards. The CNA is generally updated every two years.

The population within each subarea drives the demand for facilities. In this way the County can identify more accurately where the demand is greatest and plan accordingly. The subareas define broad communities such as Leesburg and its environs or the three western towns along Route 7.

The boundaries are based on Traffic Analysis Zones (similar to census tracts), which sometimes divide smaller communities. Furthermore, while the CNA is based on population, it does not account for the diversity of Loudoun’s population and the associated variations in facility needs and community desires. For these reasons, the Planning Commission, during their review of the FY 2020-2030 CNA, recommended the Board investigate a more community-driven planning approach that could address demographic differences, development constraints, and community expectations.

### Capital Facilities Standards

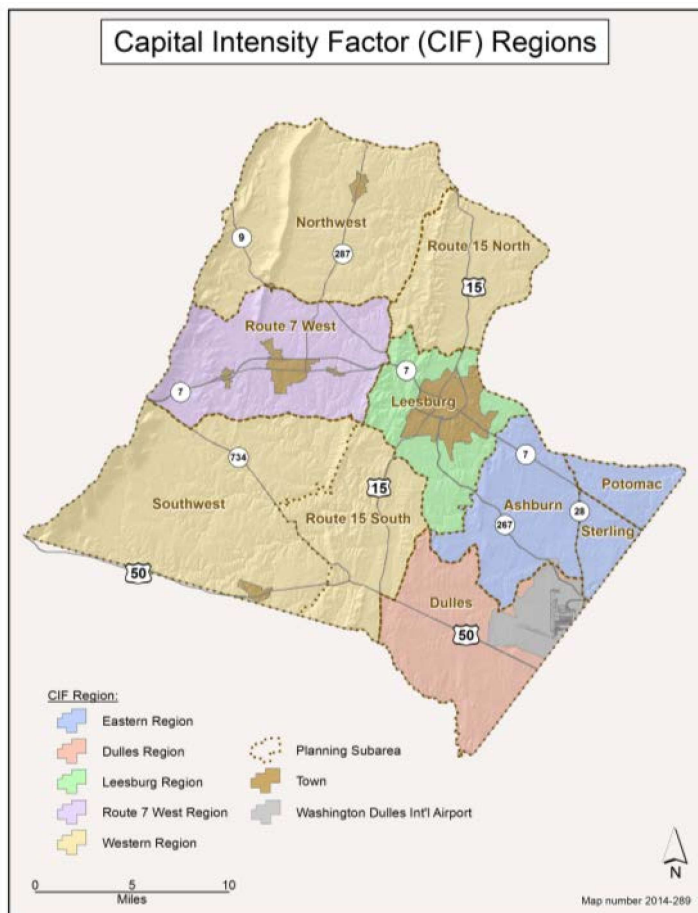
The CFS determines the general size and scope of facilities by establishing a maximum land use area (acreage) and construction footprint floor area. As design and engineering of a facility progresses, and specific sites are chosen, acreage and floor area may differ from the CFS standard. County departments provide information on what standards to use for each of their facilities. The CFS also establishes a population threshold (“trigger”) for each type of facility. A fiscal analysis of the Comprehensive Plan estimated 4,171 acres will be needed by 2040 using the 2016 adopted Capital Facilities Standards.

*Example: The CFS determines a need for one fire station for every 25,000 persons in the Ashburn planning subarea. The current population forecast for Ashburn is 83,000 persons in 2017 and is projected to increase to 125,000 persons by 2023. As of 2017, the current need for fire stations is 3.32 (83,000 divided by 25,000). There are currently three fire stations existing in Ashburn and another one funded in the CIP (for a total of 4.0). The total need for fire stations will increase to 5.0 (125,000) by 2023, therefore, the CNA would identify one additional fire station by 2023.*

### Capital Intensity Factor

The CIF translates the anticipated capital cost and land requirements derived from the CFS into a per-housing-unit cost. The calculation determines costs per capita and costs per student, which then helps estimate the cost associated with different housing unit types based on average household sizes. The resulting cost per housing unit is valuable during development review to estimate impacts of individual applications and to evaluate proffer packages proposed by a rezoning applicant.

*1993 Choices and Changes General Plan* standardized the County’s use of a



CIF to calculate capital facilities proffers. The County, by policy, anticipated a landowner contribution of 25 percent of the anticipated capital impact of each residential unit over a base density of 1.6 units per acre. At that time, the CIF was a countywide number. The Comprehensive Plan carries forward the County proffer policy established in the *2001 Revised General Plan* (RGP), which called for landowners to mitigate 100 percent of the capital facilities impact for each unit above a base density established by existing zoning or one unit per acre, whichever is lower. The RGP also featured a separate CIF for each policy subarea. The refinement acknowledged notable differences in land costs and other differences associated with constructing facilities in each subarea. The Board has also incorporated a separate CIF for age-restricted housing and additional housing types. Recognizing a pressing need for certain transportation improvements, the County also allows landowners to redirect capital facilities contributions to transportation infrastructure in certain situations.

### **Capital Improvement Program**

The six-year CIP refines the County's CNA-forecasted future capital facility growth, providing a six-year program of the County's general government and public schools' land, facility, and equipment needs, and a financing plan to implement each need. The CIP schedules land acquisition, design, construction, and capital equipment procurement for each project. Potential projects are evaluated in relation to each other to prioritize funding of specific projects. Essential improvements are planned in a manner commensurate with the County's ability to pay.

The CIP is developed biennially, with the six-year period moving out an additional two years every other fiscal year. The CIP is a multiyear plan that does not constitute or require an appropriation of funds beyond those for the current fiscal year. Funding decisions concerning the CIP are made in conjunction with decisions regarding the County's operating budget. Most new facilities require an ongoing commitment in operating funds for new employees, utilities, and other costs.

The proffer guidelines as set out in the Comprehensive Plan accommodate urban development concepts and more diverse housing into the CIF. Going forward, the County will pursue additional refinements. In light of state legislation adopted in 2016 that limits the use of proffers, the County will also explore other mechanisms to diversify funding opportunities, including impact fees, which could apply to residential developments whether permitted by-right or through legislative action. Additional state enabling authority would be necessary to effectively use impact fees; existing legislation is limited in scope and imposes difficult implementation requirements, leading very few localities to take advantage of this tool.

As part of its strategic planning efforts on growth management, the County will consider expanding discussion of net impacts, including the capital needs and costs of individual projects on countywide infrastructure and the economic and revenue benefits of new development. As such, the County would evaluate 1) the impact of a rezoning application on the local transportation network and public facilities, 2) what the application is or is not doing to mitigate the impact, and 3) what facilities exist and/or are funded to serve the subject property and surrounding area during the development review process. Additionally, the County is developing an analysis model to assist with evaluating the fiscal impact of future development.

## Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply Countywide. All of the Policies, Strategies, and Actions set forth in all of the following paragraphs of Chapter 6 shall apply and be applied by the County only subject to and in compliance with the limitations established by Virginia Code Section 15.2-2303.4 as applicable. In its consideration and acceptance of all proffers, the County will apply the standards of Virginia Code Sections 15.2-2297, 15.2-2303, and 15.2-2303.4, as applicable, to evaluate the reasonableness of proffered conditions, and for those applications subject to Section 15.2-2303.4, the County shall accept only those proffers permitted or deemed reasonable under Virginia Code Section 15.2-2297 and not deemed unreasonable under Section 15.2-2303.4.

### Fiscal Policy I: Provide public facilities to meet identified needs.

#### Strategy

- 1.1. Use the CNA Program to plan and coordinate facility needs and location criteria to ensure adequate dispersal and timely availability of County facilities.

#### Actions

- A. Support LCPS acquisition of needed sites through the fiscal planning and land development processes.
- B. Co-locate public safety and other public facilities whenever it will improve service efficiencies.
- C. Make school-related open space and athletic fields available for joint use by PRCS.
- D. Combine public open space and parks with public facilities and civic buildings, in community centers, town centers, and other gathering places and include amenities such as seating areas, public art, playgrounds, gardens, etc.
- E. Design public facilities to be a distinguishing feature of the community using sustainable materials, context-sensitive design, and attractive architectural features.
- F. Design new public facilities to 1) be functional and efficient to persons with diverse abilities, 2) to reflect the physical character of the surrounding community, and 3) to maximize the broader social and cultural role the facility can play in the community.
- G. Establish an expansion plan for the Fire and Rescue Training Academy based on a needs assessment of the existing campus as the needs of LCFR and the County increase. Ensure the requirements of Fire and Rescue training remain a priority during the development of surrounding areas.
- H. Support proactive acquisition of sites for public facilities and to “bank” property for potential projects that may not yet be scheduled on the CIP.

#### Strategy

- 1.2. Support continued use of existing public facilities through ongoing capital asset replacement, renovation, and modernization, particularly where facilities play an

important role in social and economic activity of the local community or are historically significant.

#### Action

- A. Maintain and modernize existing County facilities to meet resource demands, and changing customer and community needs.

#### Strategy

- 1.3. Strategically locate public facilities where they can serve the community efficiently and effectively.

#### Actions

- A. Locate new public facilities on sites that can accommodate future expansions and allow co-location with other public agencies with similar activities or clients when possible. Use the expansion space around new public facilities for parks, commuter parking, and other interim uses that are compatible with the new facility until expansion is required.
- B. Investigate co-locating County facilities with complementary uses that would create a mutually beneficial relationship; for example, locate schools with affordable housing or libraries with parks and make surplus County lands available for affordable housing projects.
- C. Locate Fire and Rescue and Sheriff's Office facilities in accordance with adopted response time goals and at the most strategic point in a proposed service area.
- D. Locate "high traffic" public facilities in highly visible, accessible locations with adequate automobile and pedestrian access; examples of such locations include mixed-use centers, towns, and villages.
- E. Integrate housing, human services facilities, and services for special needs populations in the Urban, Suburban, and Transition Policy Areas, Towns, and JLMAs to provide ease of access to associated commercial services, jobs, and amenities.
- F. Link new public facilities and adjacent neighborhoods with sidewalks, greenways, and trails.
- G. Locate new public facilities in western Loudoun in close proximity to the Towns and JLMAs when suitable land is available and locations can meet response time and other service standards.
- H. Establish and maintain effective levels of public open space in all residential and mixed-use communities.
- I. LCPS will determine the need for new public school sites and public facilities in Loudoun County. The County will coordinate with LCPS to identify suitable sites based on the *Loudoun County 2019 Comprehensive Plan* and its land use and growth policies in concert with LCSB's standards and levels of service as adopted by the Board of Supervisors.

- J. The County will acquire school sites in advance of LCPS’s recognized short and long-term future needs to minimize school transportation costs and to structure future planned growth.

Strategy

- 1.4. Encourage partnerships that contribute toward significant, meaningful, shared public facilities.

Actions

- A. Support and encourage partnerships that develop sustainable housing for special needs populations, including the elderly, the mentally and physically handicapped, low income persons, and the homeless.
- B. Support the acquisition of land and development of facilities such as the Potomac Heritage National Scenic Trail.
- C. Work with the United States Department of the Interior, the Virginia Tech Conservation Management Institute, the Virginia Department of Historic Resources, NOVA Parks, and other local, regional, and state organizations and the incorporated Towns to define and recommend areas for open space preservation and development of a trail network that links the County’s natural, historic, and recreational resources.
- D. Work with homeowners’ associations (HOA) and other property owner associations (POA) to encourage greater public access to association open space and facilities.
- E. Collaborate with Loudoun Water and NOVA Parks to support safe, compatible public access and recreation at water supply reservoirs.
- F. Coordinate recreation planning efforts with the Towns to prevent duplication of services.
- G. Identify opportunities, such as public/private partnerships and co-location, to work with the private sector to provide public facilities.

**Emergency Services Development Standards**

**Fiscal Policy 2: Enhance efficient and effective public safety and emergency services response through the implementation of appropriate development standards.**

Strategy

- 2.1. Ensure adequate fire suppression for residential uses that are not served by an on-site water source and/or are located outside minimum response times of existing stations.

Actions

- A. Create and maintain development regulations that require an adequate water supply, such as dry hydrants or tanks, for new residential subdivisions of more than five dwelling units when an alternative water source is not available on site.
- B. Encourage and offer incentives to voluntarily provide sprinklers in new residential construction.



- C. Higher densities proposed in compact and mixed-use communities, and design concepts such as narrower streets, reduced yards, and less space between buildings, should be contingent on installation of sprinkler systems in all buildings.
- D. As part of residential rezoning applications in areas that are subject to approved small area plans or approved Metrorail service districts, recommend that sprinklers be installed in all new residential construction that is located outside of the recommended emergency services response times established in agency services plans.

### Strategy

2.2. Ensure adequate and efficient access for emergency vehicles.

### Actions

- A. Eliminate non-contiguous street names, duplicate street names, and sound-alike street names, and ensure that addresses reflect the access location.
- B. Coordinate with Virginia Department of Transportation (VDOT) to ensure that all new traffic signals are equipped with signal preemption equipment to provide priority access to emergency vehicles responding to a call.
- C. Establish a program that retrofits existing traffic signals, subject to VDOT approval, with signal preemption equipment to provide priority access to emergency vehicles responding to a call.
- D. Require development applications to demonstrate adequate access for emergency apparatus.
- E. Ensure that development regulations address the installation and maintenance of emergency apparatus access roads for fire and rescue resources.
- F. Discourage the use of “emergency access only” gates and other roadway barriers.

## **Open Space (see also Chapter 3, Natural, Environmental, and Heritage Resources)**

**Fiscal Policy 3: Retain the County’s unique combination of urban, suburban, and rural communities by using open space to protect natural resources and habitat, to create a network of high-quality active and passive recreation spaces, and to delineate our built environments.**

### Strategy

- 3.1 Use contiguous linear parks, connected trails, and natural open space corridors to improve public access to open space, encourage healthy lifestyles, and link destinations throughout the County.

### Actions

- A. Build on and encourage links to current planned trails and park areas, placing greater emphasis on connected, publicly usable, and accessible open space and identify desired

locations and connections of future trails and parks to facilitate acquisition and development.

- B. Establish programs and regulatory mechanisms to increase publicly accessible open space through easements, land dedications, and purchase; ensure that such programs and mechanisms are consistent with County facilities plans.
- C. Incorporate open space amenities into the design of stormwater facilities and link such facilities by trails to create a network of water-based parks and greens.
- D. Ensure that new developments extend publicly-accessible trails and linear parks into and through their projects with the intent of creating a network of public trails that is consistent with the County plans.
- E. Encourage applicants requesting residential rezonings to include language in HOA/POA bylaws that allows public access to some or all linear parks and trails, particularly those connecting to public facilities and to outside trails or parks.
- F. Establish and maintain desirable levels of usable, public open space in all residential and mixed-use communities.
- G. Increase the number of access points to key trail systems from adjacent neighborhoods and destinations.
- H. Seek through public purchase, proffer, donation, or third-party easement, the preservation of natural areas and the development of linear parks, recreation space, and trails.
- I. Continue the Open Space Preservation Program, to the extent permitted by Virginia Code Section 15.2-2303.4, linking the loss of open space associated directly with low-density land use to the provision of open space or funds towards the purchase of open space that provides publicly accessible and usable open space as follows:
  - i. In the Suburban Policy Area, residential neighborhoods or land bays proposing densities lower than 4 dwelling units per acre or floor area ratios of less than 0.4 should augment required open space with voluntary participation in the Open Space Preservation Program by providing:
    - a. The equivalent of 40 percent public open space in the Suburban Neighborhood place type and 20 percent in the Suburban Compact Neighborhood and Suburban Mixed Use place types, consisting of onsite open space required by development regulations and additional usable and publicly accessible open space proximate to the development, or
    - b. A cash contribution, equivalent to the value of the additional open space, towards the Open Space Preservation Program.
  - ii. In the Urban Policy Area, projects in areas planned for Urban Mixed Use and Urban Transit Center place types that propose floor area ratios of less than 1.0

should augment required open space with voluntary participation in the Open Space Preservation Program by providing:

- a. The equivalent of 20 percent open space consisting of on-site open space required by the zoning regulations and design standards, and additional usable and publicly accessible open space proximate to the development, or
  - b. A cash contribution, equivalent to the value of the additional open space, towards the Open Space Preservation Program.
- iii. Link modifications reducing on-site open space, buffer widths, or landscaping requirements with the provision of an equivalent or greater amount of open space or an equivalent cash contribution towards the Open Space Preservation Program.
  - iv. Use open space easements or funding provided by projects in the Urban and Suburban, Policy Areas through the Open Space Preservation Program to extend existing public trails, provide active and passive parks or to protect priority sites (see 3.1.K., below).
- J. Institute a program whereby the County facilitates acquisition of conservation easements by others by providing assistance such as a revolving loan program to reduce or defer the landowner cost of establishing conservation easements. The program should emphasize protecting the priority open space areas that are identified in this Plan that are not otherwise protected.
- K. Encourage protection of the following priority open space areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development design, and other means:
- i. Key natural, environmental, and heritage resource features not already protected from development by conservation easements or regulation;
  - ii. Rural areas immediately adjacent to the Towns, JLMAs, and Rural Villages that help form greenbelts and gateway buffers;
  - iii. Areas adjacent to the Potomac River, Catoctin Creek, Bull Run, Goose Creek, and Broad Run floodplains, to protect water quality;
  - iv. Properties on or eligible to be listed on the State or National Registers of Historic Places and within local historic districts;
  - v. Corridors and sites identified for trails and parks and additions to existing parks; and
  - vi. Other areas of local natural, historic, or cultural significance including but not limited to designated scenic rivers and roads, ridgelines, and battlefields.
  - vii. Amend the zoning ordinance and development regulations as needed to permit a percentage of the open space required on an individual site to be met through off-site permanent open space that creates a more usable, desirable, or environmentally significant open space (see 3.1.J, above) located in the same planning subarea identified in the latest Capital Needs Assessment.

## **Sewer and Water (see also Chapter 2, Towns and JLMA)**

**Fiscal Policy 4: Work with Loudoun Water and the Health Department to ensure timely provision of central, community, or on-site sewer and water in accordance with the land use policies of this Plan. The County will encourage water and wastewater service to be provided in the most efficient and effective manner possible and promote the use of the best utility system in accordance with the policies of this Plan.**

### **Countywide Strategies**

#### Strategy

4.1 Implement strategies to resolve sewer and water issues in existing communities.

#### Action

- A. Pursue funding sources to rehabilitate homes that currently lack adequate sewer and water systems.

#### Strategy

4.2 Define specific service areas for utility systems to protect the viability of County land use goals.

#### Actions

- A. Establish the geographic limits of standards-based utility service, and ensure adequate capacity and supply safeguards through the Commission Permit process prior to expanding existing service boundaries, or adding new boundaries in the case of the Rural Policy Area.
- B. Prohibit connection to water distribution and wastewater collection systems when such requires crossing land outside a defined water or sewer service area, except as allowed herein.

#### Strategy

4.3 Prohibit the use of any standalone or community system that does not ensure long-term safe, sustainable, and environmentally sound water supply and wastewater treatment.

#### Actions

- A. Require development proposals outside of areas served by central system facilities to demonstrate a safe, adequate, and long-term sustainable potable water supply and sewage treatment capacity in accordance with the land use policies of this Plan.
- B. Encourage concentrating development away from water supply reservoirs and water supply sources.
- C. Implement a pollution prevention and mitigation program to protect and improve the County's surface water quality.

- D. Permit pump-and-haul operations only as a last resort and a temporary wastewater disposal method and only to address a proven public health issue.

## **Urban, Suburban & Transition Policy Areas – Central Sewer and Water**

### Strategy

- 4.4 Loudoun Water will be responsible for the provision of central water and sewer service in the Loudoun Water Central System area as shown on the Water/Sewer Service Areas Map.

### Actions

- A. Collaborate with Loudoun Water to ensure safe and adequate long-term water supply and wastewater treatment systems to meet County development goals.
- B. Facilitate development and efficient operation of retired quarries as water supply reservoirs and protect reservoirs by establishing effective and sustainable watershed protection measures.
- C. Expand the use of Loudoun Water’s reclaimed water network.
- D. Require new development in the Urban, Suburban, and Transition Policy Areas to connect to Loudoun Water’s central water supply and wastewater treatment systems.
- E. Encourage existing residences and communities served by onsite or community facilities to connect to central water or sewer facilities when such facilities become available via long-term financing or other incentives.
- F. Assist existing communities or residences to connect to a nearby central water or sewer system if on-site water supply or waste treatment capability has deteriorated to a point where there is a potential public health risk.
- G. Construct new central wastewater and water lines and facilities in a manner that causes the least environmental risk and visual disruption.

## **Rural Policy Area – On site and Community Systems**

### Strategy

- 4.5 Protect the rural character of western Loudoun by considering the ability of an area to support onsite or community water and wastewater systems for any areas proposed for development.

### Actions

- A. Prohibit extension of central water and wastewater service into the Rural Policy Area, except to address a public health threat to an existing rural community or to serve public facilities on contiguous parcels immediately adjacent to the western boundary of the Transition Policy Area.

- B. Institute a wellhead protection program in all areas not served by central system facilities to ensure adequate water quality.
- C. Discourage the use of groundwater for nonagricultural irrigation such as automated lawn sprinklers and swimming pools and other nonessential purposes.
- D. Maintain oversight of siting, design, installation, and maintenance of conventional and alternative on-site sewage disposal systems.
- E. Require the installation of technology that treats groundwater to a surface water level of treatment standard, in accordance with Loudoun Water's Engineering Standards Manual, as a condition of approval for development of potable water supplies in any portions of the Limestone Overlay District and/or where subsurface karst geology exists.
- F. Implement an inspection and maintenance program for conventional on-site sewage disposal systems and provide homeowner educational materials on this and related well and septic safety for residents in the Rural Policy Area, particularly in the Limestone Overlay District.

### Strategy

- 4.6 Collaborate with the Health Department in conjunction with Loudoun Water to identify viable alternative water supply and wastewater treatment methods to individual well, septic and drainfield-based systems, including community treatment plants and onsite treatment to support clustered residential development.

### Actions

- A. Implement water and wastewater treatment and disposal standards for alternative systems that protect water quality.
- B. Allow community water and wastewater systems in the Rural Policy Area:
  - i. to serve rural economy uses and residential clusters as defined in this Plan,
  - ii. to solve potential public health risks, and
  - iii. to serve public facilities.
- C. Support construction of community systems for existing rural communities facing a potential public health risk. In such cases, the community system may be available to undeveloped lots within the existing community to support development that extends the viability of the community and is consistent with the scale, density, and character of the community.
- D. Require Loudoun Water to own and operate all public community water and wastewater systems with more than 15 connections.
- E. Require a Commission Permit, establishing a defined service area, prior to the construction of any community water or wastewater system.
- F. Permit the extension of municipal (town) sewer and water into the Rural Policy Area to serve public facilities or to address a potential public health risk.

- G. Require financing of community water and wastewater systems by the developer or by those who will be directly served by the system. A financing plan will be required to address initial capital costs and operating costs. The system must be designed, organized, and operated to be financially self-sustaining to pay all costs incurred by Loudoun Water for operation and maintenance and to provide appropriate reserves. The County may provide financial assistance in the form of loans or grants to assist in the construction of such a facility for existing rural communities if the system is needed to solve a significant public health threat.

## **Solid Waste Management**

**Fiscal Policy 5: Continue to implement an integrated solid waste management strategy that prioritizes reduction, reuse, and recycling of solid waste above resource recovery, incineration, and disposal into landfills.**

### Strategy

- 5.1 The County Solid Waste Management Plan will identify the type and level of service to be provided in the community.

### Actions

- A. Continue to ensure that the County always has an acceptable means of local waste disposal through the County landfill operations, should other waste disposal alternatives fail or become ineffective.
- B. Continue to seek private sector support for the provision of current and future Solid Waste Management Services.
- C. Develop a hazardous waste education program and increase residential access to the safe disposal of hazardous waste to protect groundwater resources.
- D. Reduce landfill waste by promoting recycling and composting.

## **Electrical**

**Fiscal Policy 6: Support expanded electrical capacity through generation facilities that use clean burning and environmentally sound fuel sources and energy efficient design.**

### Strategy

- 6.1 Encourage local electrical generation in appropriate locations throughout the County.

### Actions

- A. Establish zoning regulations and design standards that permit alternative electrical generation such as wind and solar generation by and for individual users.
- B. Encourage the safe grouping and burying of utility lines and facilities.
- C. Work with electrical providers to identify potential high voltage distribution lines and substation locations that minimize impacts on key travel corridors, sensitive cultural

and historic resources, and existing residential communities or to place high voltage distribution lines underground when approaching such areas; and where possible, use existing transmission corridors and substation sites to expand capacity.

- D. Encourage the use of design techniques that will minimize the visual impact of electrical substations adjacent to major travel corridors or residential communities including the use of stealth design techniques.
- E. Continue to monitor and minimize energy use in County facilities and create a program that would encourage benchmarking energy use in private buildings.

## Communication

**Fiscal Policy 7: Support the development of a high-quality wired and wireless telecommunications network to serve businesses, residents, and visitors.**

### Strategy

- 7.1 The County's *Strategic Land Use Plan for Telecommunication Facilities* and other regulations and standards will be regularly updated to address emerging technologies, to create an environment attractive to businesses, and provide high-quality services to meet the demands of the County.

### Actions

- A. Review and update the County's *Strategic Land Use Plan for Telecommunication Facilities* to facilitate the expansion of fiber and broadband service throughout the County.
- B. Adopt zoning regulations and design standards requiring open access conduit to all development projects to facilitate future broadband extensions.
- C. Establish performance standards for wireless communication facilities to minimize the need for legislative action.
- D. Incorporate the capacity to locate broadband and wireless facilities into the design, approval, and construction of all public facilities.
- E. Locate telecommunications facilities and equipment associated with public safety agencies in accordance with communication utility standards and the Comprehensive Plan.

## Fiscal Management

**Fiscal Policy 8: Link the goals of the Board of Supervisors' adopted Fiscal Policy and the County's Comprehensive Plan.**

### Strategy

- 8.1 Maintain a diversified and stable revenue structure by balancing residential and non-residential development.

### Actions



- A. Seek further revenue diversification to increase fiscal stability and thereby mitigate tax burdens on Loudoun County taxpayers.
- B. Direct the majority of public investments into currently developed communities, Towns and non-residential areas of the County where development is planned according to the Comprehensive Plan and give priority to the redevelopment and enhancement of existing infrastructure, capital facilities, and services.
- C. Where permitted by law, continue to seek private sector support for improvements or provision of current and future public facilities and sites, including proposals of cash and in-kind assistance for public facilities in addition to the timely provision of dedicated sites.
- D. Seek authority from the state legislature to establish impact fees and a reasonable implementation process applicable in areas of the County where rezonings are not anticipated or where the provision of improvements and facilities through proffers associated with rezonings for new residential development is restricted by State legislation.

### Strategy

- 8.2 Capital facility planning and budgeting will reflect anticipated needs based on forecasted development.

### Actions

- A. Update financial and planning tools regularly to evaluate long-term land use, fiscal, and demographic issues under the oversight of the Board and its advisory committee, the Fiscal Impact Committee.
- B. Maintain long-range forecasts of residential and non-residential development, population, households, and employment.
- C. Develop demographic, economic, and financial data that are used as inputs to demographic forecasts and for fiscal impact modeling.
- D. Develop and regularly update the CIF—the dollar amount of the capital facilities impact measured by unit type or unit characteristics and geographic location that is calculated using County CFS and demographic inputs. The County uses the CIF to assess the capital facilities impacts of new residential development and provide a guideline to evaluate and consider residential rezoning applications and proposed proffers.
- E. Regularly refine CFS, including the type, acreage, and size of future capital facilities, along with “triggers” based on population, policy area, place type, community characteristics, or other community factors.
- F. Regularly refine the CNA, including the type and number of capital facilities needed over a ten-year planning period beginning at the end of the current six-year CIP.

- G. Where permitted by law, seek to ensure that an equitable and proportionate share of public capital facility and infrastructure development costs that are directly attributable to a particular development project will be financed by the users or beneficiaries.
- H. Evaluate, consistent with the Virginia Code Sec. 15.2-2283 and 15.2-2284 and other applicable law, the adequacy of existing and planned public facilities and services when assessing impacts of any legislative application for more intensive use or density. To fairly implement and apply this policy, the County will consider the following:
  - i. existing facilities;
  - ii. facilities included in the CIP;
  - iii. the ability of the County to finance facilities under debt ratios and limits established by its fiscal policies;
  - iv. CFS and the effect of existing and approved development, and the proposed development, on those standards;
  - v. service levels of the existing transportation system – the effect of existing and approved development and the proposed development on those service levels and the effect of proposed roads which are funded for construction;
  - vi. commitments to phase the proposed development to the availability of adequate services and facilities;
  - vii. the availability of non-profit or HOA facilities to provide equivalent public access and programming; and
  - viii. other mechanisms or analyses as the County may employ that measure the adequacy of such services and facilities for various areas or that measure the County’s ability to establish adequate services and facilities.

### Strategy

- 8.3 Until such time as the General Assembly grants authority for other options, the County will consider landowner proposals of cash and in-kind assistance to mitigate capital facilities costs associated with new development, subject to the limitations established by Virginia Code 15.2-2303.4.

### Actions

- A. Consider proposals of the timely dedication of land, cash, and in-kind assistance from a landowner through proffered conditions submitted in accord with Virginia Code Sections 15.2-2303, 15.2-2303.4, and 15.2-2297, as applicable, in the provision of public facilities identified in the CIP or CNA.
  - i. The County expects that such proposals of public facility and utility assistance by developers will occur in conjunction with any rezoning request seeking approval of densities above the existing zoning regulations and design standards.

- B. Ensure that an equitable and a proportionate share of public capital facility and infrastructure development costs that are directly attributable to a particular development project are financed by the users or beneficiaries.
- C. Apply all of the proffer policies and actions and guidelines set forth in this document subject to and in compliance with the limitations established by Virginia Code Section 15.2-2303.4 as applicable. In its consideration and acceptance of all proffers, the County will apply the standards of Virginia Code Sections 15.2-2297, 15.2-2303, and 15.2-2303.4, as applicable, to evaluate the reasonableness of proffered conditions.
- D. For those land development applications subject to Virginia Code Section 15.2-2303.4, the County shall accept only those proffers permitted or deemed reasonable under Section 15.2-2297 and not deemed unreasonable under Section 15.2-2303.4.
- E. Where and to the extent permitted by law, the County will structure residential proffer guidelines based upon the respective levels of public cost of capital facilities generated by various factors such as size, location, and type of dwelling units.
- F. To assist the County in an equitable and uniform evaluation of developer proffers and other proposals, for proposed densities above the specified base density for each planning policy area, which otherwise conform with the policies of this Plan, the County anticipates developer assistance valued at 100 percent of capital facility costs associated with such increased densities.
- G. The County will consider differentiating between conventional suburban housing and other types of housing such as age-restricted, accessory, and micro units, and consider commitments to small unit sizes or affordability in estimating the capital facility needs and CIF.
- H. Review the Capital Planning Subarea boundaries to ensure, to the extent feasible, that they do not divide existing communities and to consider service standards that provide flexibility in response to demographics, land availability, and other characteristics of specific communities.
- I. Consider developing capital standards for roads to incorporate into the CIF.

### Strategy

- 8.4 Adoption of this Plan establishes the boundaries for Small Area Plans, authorized under Code of Virginia Section 15.2-2303.4, encompassing the Urban Policy Areas, Suburban Policy Area, Transition Policy Area, Leesburg JLMA, and the three Silver Line Metrorail Stations within the County as shown on the Small Area Plan Boundaries Map. The planned land use within these Small Area Plan boundaries will reflect the land uses developed in the *Loudoun County 2019 Comprehensive Plan* for each policy area until such time as the Board adopts more detailed plans.

## Strategy

- 8.5 Use the following capital facilities proffer guidelines to evaluate proposed capital facility proffers subject to and in compliance with the limitations established by Virginia Code Section 15.2-2303.4 as applicable.

## Actions

- A. Use the following definition of “Capital Facility Proffer” to evaluate proffers: “A contribution consistent with County policies and service needs, in cash or in kind (land or improvement), that is intended to mitigate capital facility impacts of the development and is agreed to as a condition of a rezoning.”

To be considered a proffer based on this definition, the following criteria shall apply:

- i. The proffered facility is dedicated to the County or to a local, state, federal, or regional authority or otherwise satisfies a need identified in the CFS, CNA, or CIP;
  - ii. The measure of credit will be determined based on the service needs of the proposed development and should not exceed what the County would expect to supply given the CFS and the population served at the date of official acceptance of the application or at the date of reactivation of an inactive application;
  - iii. The contribution has a quantifiable value;
  - iv. The value of land contributed for public use or use as a public facility site is recognized as a capital facility proffer;
  - v. Land for County facilities should be conveyed to the County or its designee;
  - vi. Cash contributions should be the equivalent of the capital facility impacts of the proposed development as determined by the Capital Intensity Factor adopted by the Board of Supervisors at the time the applications is considered;
  - vii. The contribution would not be required under existing statutes or ordinances; and
  - viii. The proffer is irrevocable.
- B. Seek annual adjustments for proffers involving cash contributions based on the Consumer Price Index (CPI).
- C. Base density thresholds beyond which capital facilities proffers will be anticipated are specified by planning policy areas as follows:

- i. Rural Policy Area: The planned density for the Rural Policy Area is implemented by the existing zoning pattern and zoning amendments are not anticipated. However, for zoning map amendment applications within existing villages and other similar applications, include capital facility proffers for units above the density permitted by current zoning regulations.
  - ii. Transition Policy Area: Evaluate capital facilities proffers against the base density permitted by current zoning regulations.
  - iii. Suburban and Urban Policy Areas: Evaluate capital facilities proffers against the base density permitted by the current zoning regulations or a base density of 1.0 dwelling unit per acre, whichever is lower.
  - iv. Joint Land Management Areas: Evaluate capital facilities proffers against the base density permitted by the current zoning regulations or a base density of 1.0 dwelling unit per acre, whichever is lower.
- D. To evaluate proffers for public use sites, determine the per-acre value of unimproved land by a market appraisal of the site compared to properties with the same densities proposed by the applicant. The appraisal shall be conducted by an appraiser agreed to by the County, paid for by the developer, and the results provided to the County. For improved sites, consideration will be given as applicable to:
- i. Site-preparation including clearing and grubbing, grading, erosion control, and related engineering and permitting costs.
  - ii. Project infrastructure such as stormwater management ponds, sanitary sewer lines, and major off-site and on-site roadways serving the site.
  - iii. A proportional share of improvements directly related to providing access to the site (pedestrian underpasses, construction of adjacent streets, trails, and sidewalks).

## Reference Maps

Existing and Planned Facilities (Map #2018-147)

Small Area Plan Boundaries (Map #2023-062)

Trails and Parks (Map #2018-157)

Water/Sewer Service Areas: 2023 (Map #2023-064)

# Existing Facilities

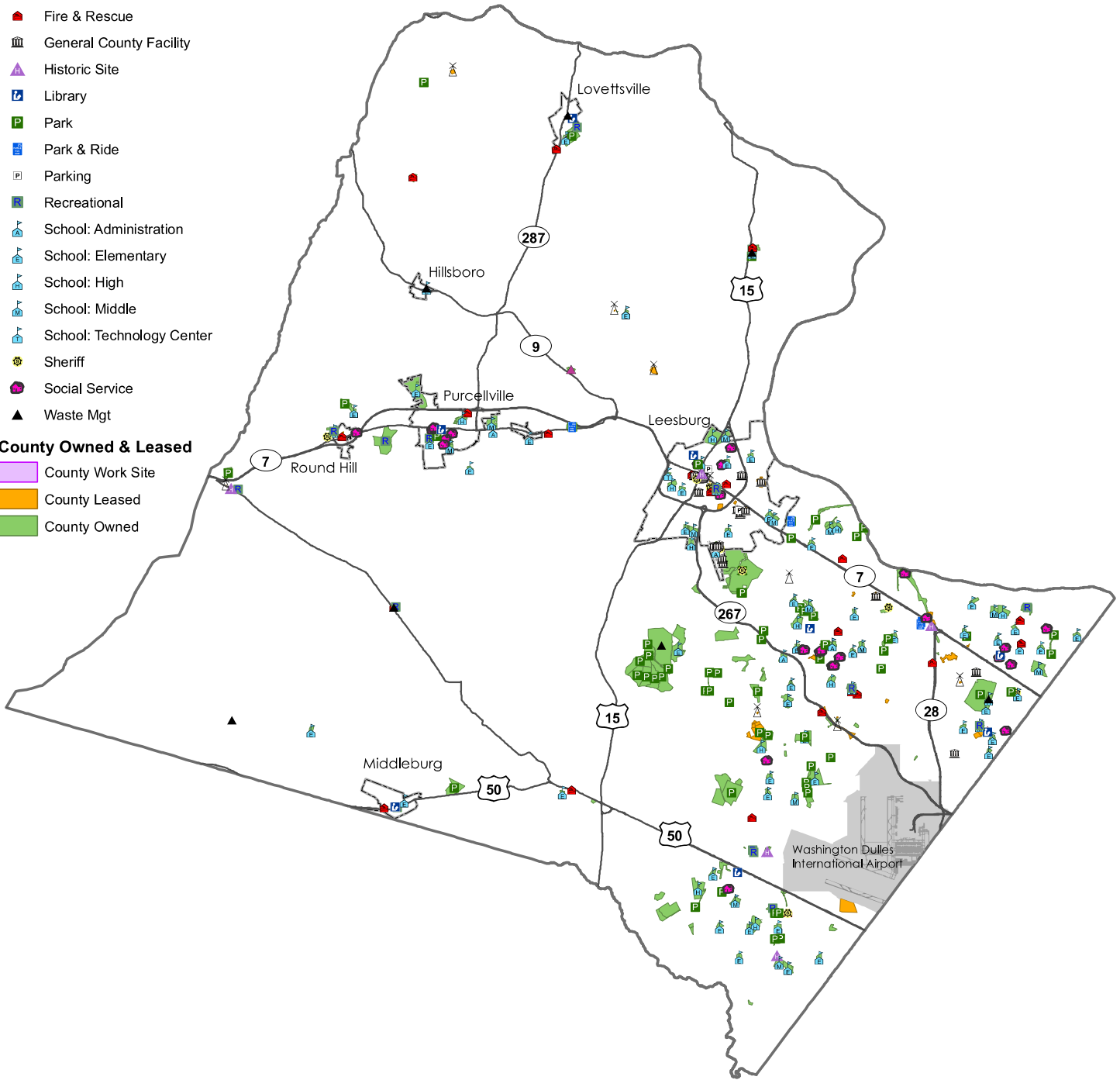
2019 General Plan



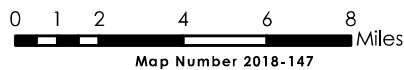
- Animal Control
- Comm Facility
- Courts
- Fire & Rescue
- General County Facility
- Historic Site
- Library
- Park
- Park & Ride
- Parking
- Recreational
- School: Administration
- School: Elementary
- School: High
- School: Middle
- School: Technology Center
- Sheriff
- Social Service
- Waste Mgt

### County Owned & Leased

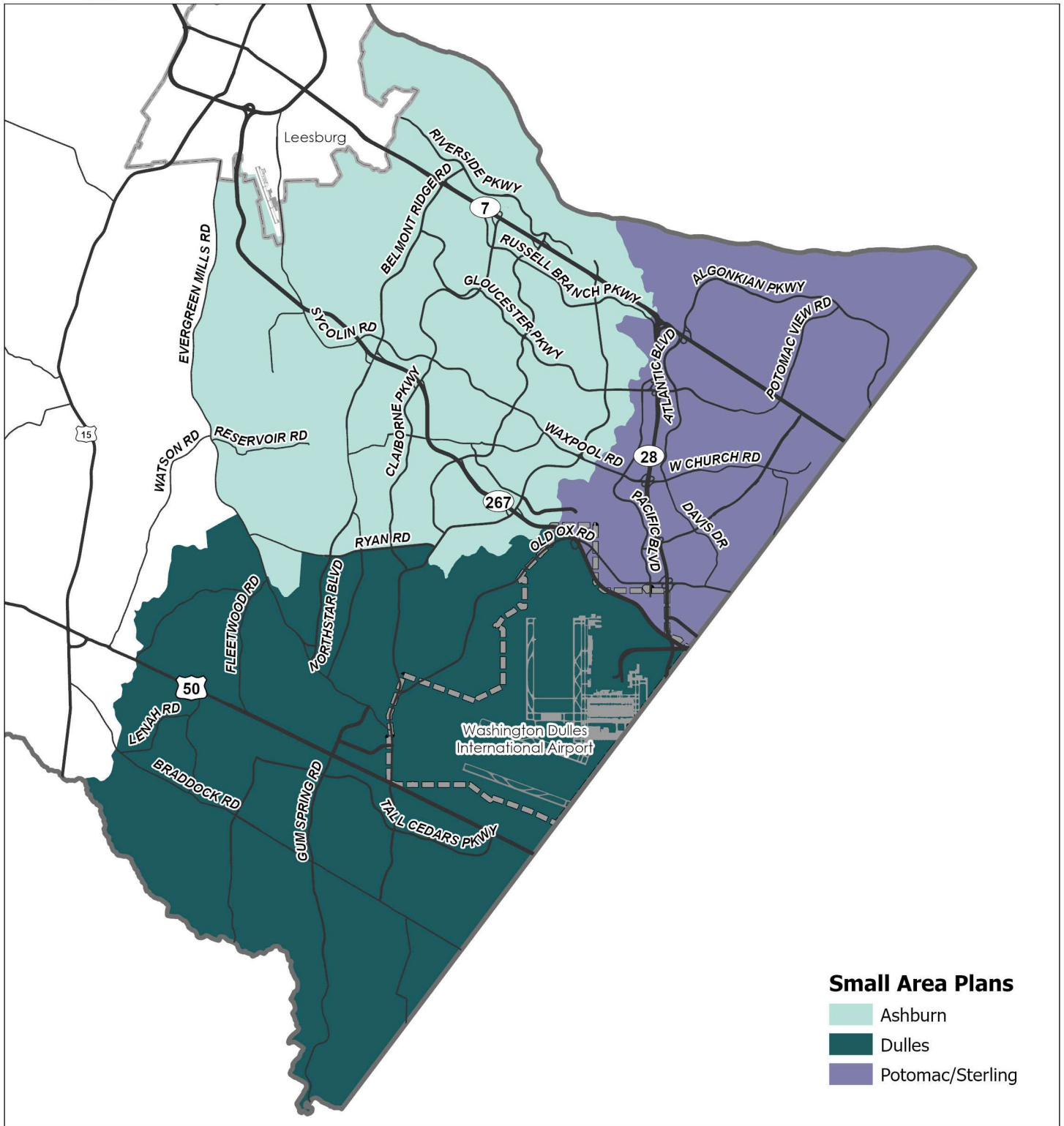
- County Work Site
- County Leased
- County Owned



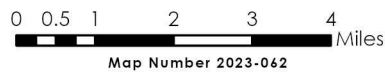
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



# Small Area Plan Boundaries



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.




Loudoun County  
**Water/Sewer  
Service Areas: 2023**  
2019 General Plan

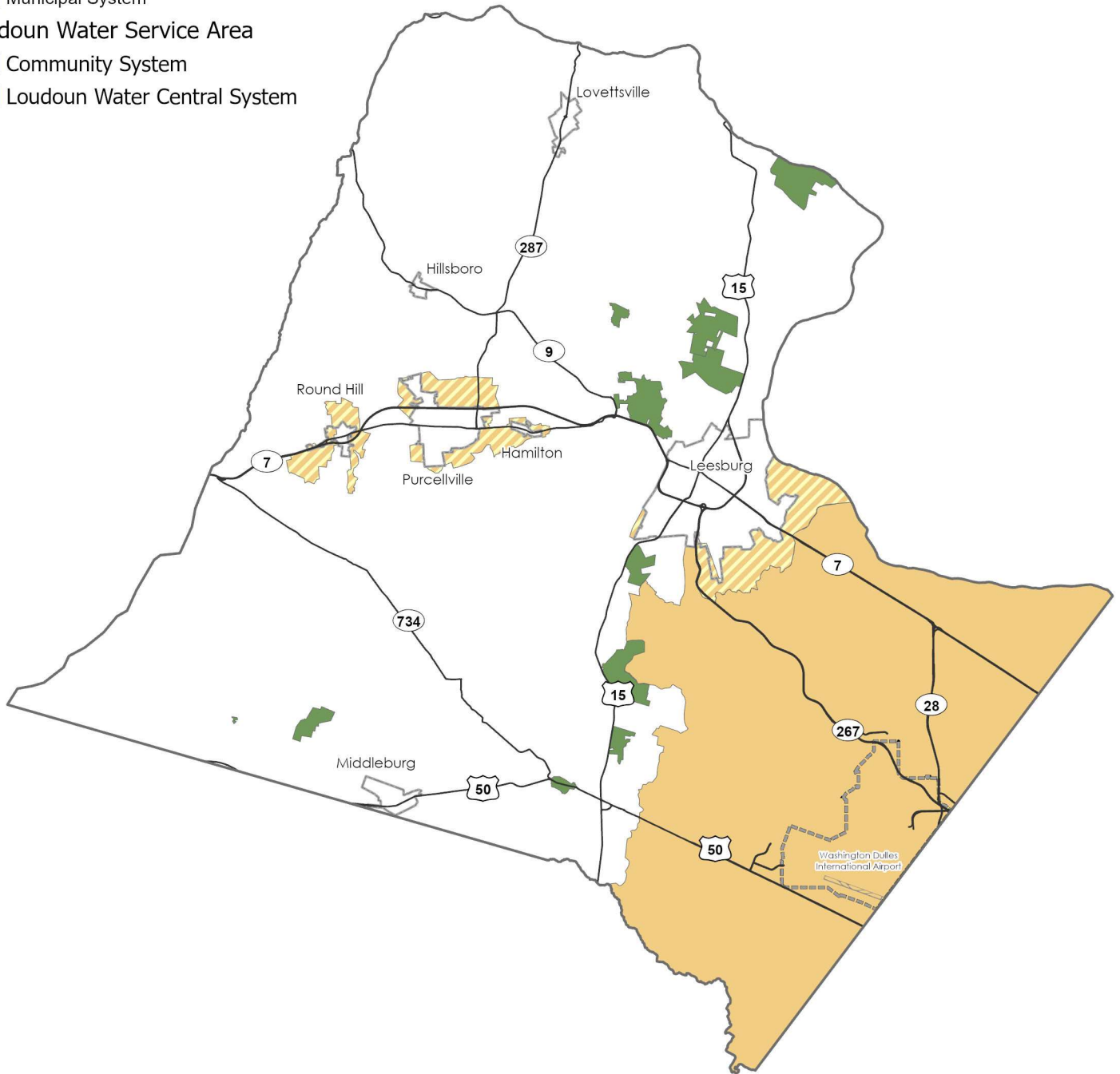


 Municipal System

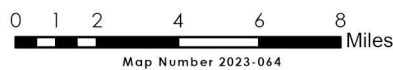
**Loudoun Water Service Area**

 Community System

 Loudoun Water Central System



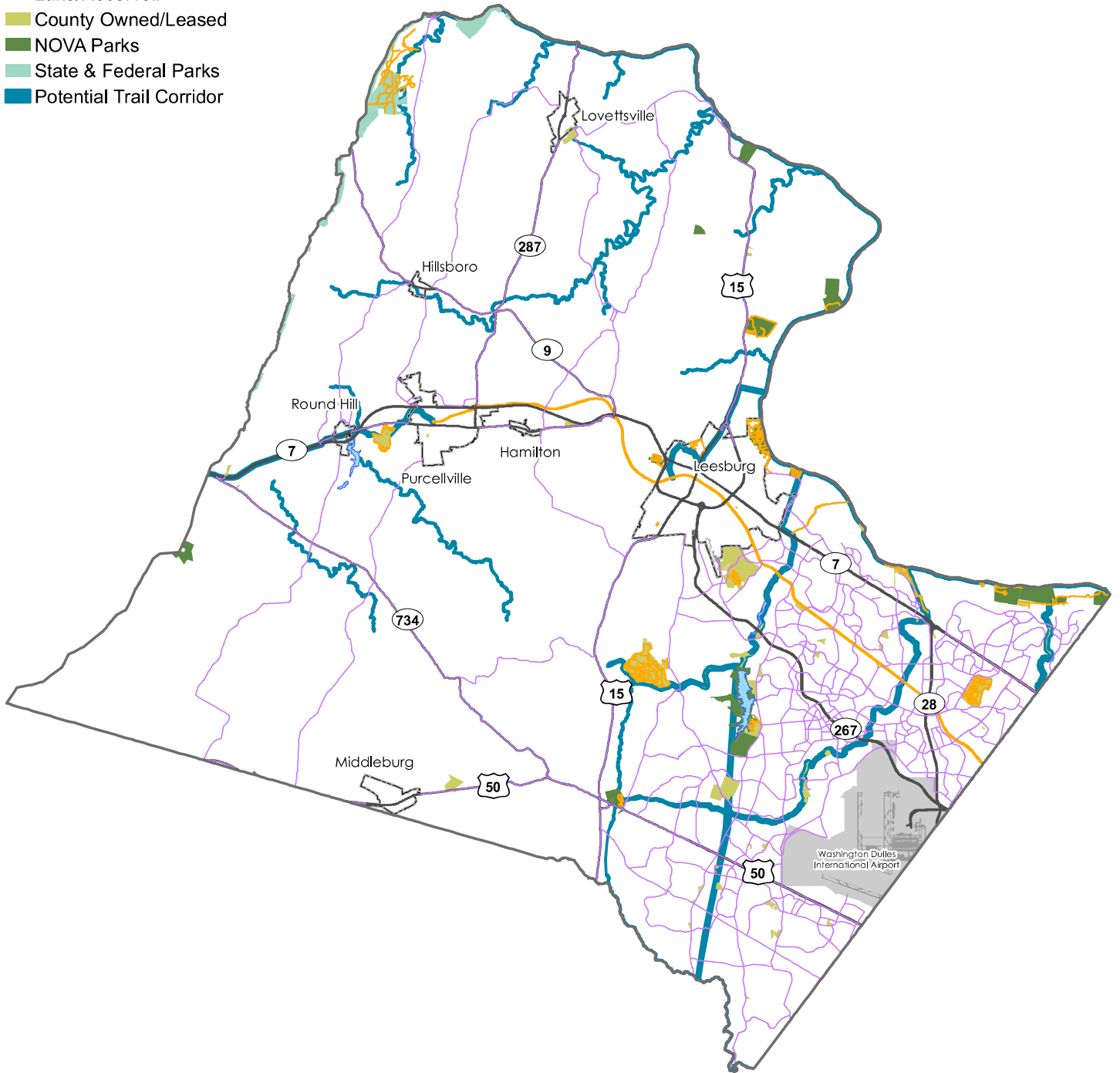
Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



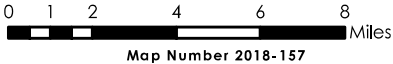




- Existing/Planned Bike Lane/Roadside Trail
- Existing Recreation Trail
- NOVA Parks Trails
- Lake/Reservoir
- County Owned/Leased
- NOVA Parks
- State & Federal Parks
- Potential Trail Corridor



Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



# Chapter 7 - Implementation

## Table of Contents

Vision.....	2
Introduction.....	2
Implementing the Plan .....	2
Implementation Strategy .....	2
Implementation Matrix .....	4

*This page left blank for printing purposes.*

# Chapter 7 - Implementation

## Vision

Loudoun County continues to flourish as a prosperous and inclusive community with a well-deserved reputation for great places—natural and built as well as historic and new—in a variety of settings. The County will foster economic innovation, fiscal strength, and sustainability.

## Introduction

The contents of the *Loudoun County 2019 General Plan* encompass the County’s desire to preserve the principles that have led to Loudoun’s success, while also addressing trends and influences that will impact Loudoun’s future. Chapters 2 through 6 of the *Loudoun County 2019 General Plan* include policies, strategies, and actions designed to achieve the Plan’s vision and goals.

The implementation of the *Loudoun County 2019 General Plan* begins with plan adoption. The Board of Supervisors identified two top implementation priorities to follow the adoption of the *Loudoun County 2019 Comprehensive Plan*: a comprehensive review and overhaul of the County Zoning Ordinance, and the development of an Unmet Housing Needs Strategic Plan. Additionally, community plans, design guidelines, continued outreach and coordination with Loudoun’s Towns, and efforts to address the goals of the *Loudoun County 2019 Countywide Transportation Plan* are all actions that may contribute to the implementation of the *Loudoun County 2019 General Plan*. The County will periodically monitor and evaluate the Plan’s progress to ensure that visions and goals are being met.

## Implementing the Plan

### Implementation Strategy

The Implementation Strategy provides an outline of the key actions that must occur to implement the *Loudoun County 2019 General Plan*’s policy direction. It gives broad, general guidance as to the key regulations, future planning efforts, studies, and programs that will need to be developed and implemented to achieve the Plan’s objectives. Many of these actions are explicitly identified in the policies, strategies, and actions of the Plan and are also contained in the Implementation Matrix described below which includes a more detailed list of implementation actions.

The implementation actions can be integrated with the Board of Supervisor’s (the Board) annual strategic planning efforts, during which the Board can identify and prioritize implementation actions. The *Loudoun County 2019 General Plan* also anticipates the establishment of an annual update for staff to provide implementation status to the Board. This will provide opportunities for staff to keep the Board apprised of the evolving planning and development environment, review implementation progress to date, and advise the Board on future priorities, as needed.

The following list identifies key implementation actions:

- Staff is to provide regular updates on the various elements of the *Loudoun County 2019 Comprehensive Plan*-which will allow the Board to direct a comprehensive review of the Plan at least every five years to ensure that the Plan is kept current. The order and sequence of the review of the chapters and policy area sections of the *Loudoun County 2019 General Plan* will be determined by the Board. Focus areas can be identified and prioritized by the Board annually during its strategic planning sessions. As part of the Board's deliberations on the Plan, two initial implementation priorities have been identified, as detailed below.
- Conduct a comprehensive review of the County Zoning Ordinance and prepare a Zoning Ordinance consistent with the Plan's policies, strategies, and actions for the Board's consideration as one of the two initial implementation priorities of the Board.
- Develop an Unmet Housing Needs Strategic Plan consistent with the *Loudoun County 2019 Comprehensive Plan* as one of the two initial implementation priorities of the Board. This plan will identify the strategies, actions and programs that can best address the County's current and projected unmet housing needs and should include but is not limited to providing guidance on down-payment assistance programs, utilization of housing trust funds, and home purchase programs. The strategic plan will also address the potential of a change to the continued use of a base density credit during evaluation of zoning map amendments. This plan should be developed prior to the approval of any zoning map amendments requesting the higher densities planned in the Urban Policy Areas outside of the Metro Tax District, Suburban Policy Area, and the Transition Policy Area.

Other priority implementation actions are as follows:

- Begin community planning and design initiatives consistent with the policies, strategies, and actions identified in this Plan, including development of strategic plans focused on particular topics and community plans for all or portions of the Urban, Suburban, Transition, Rural, and Joint Land Management Policy Areas. Community plans may include plans for specific areas noted in the Plan such as the Rural Historic Villages and gateway areas around the Towns. The order and sequence of new plans and other initiatives will be determined by the Board.
- Update the *Heritage Preservation Plan* for consistency with this Plan.
- Update the *Strategic Land Use Plan for Telecommunications Facilities* for consistency with this Plan.
- Reconvene the Fiscal Impact Committee to evaluate standards relative to the new place type service demands and specifically address the demand for public infrastructure in the Urban Policy Area.
- Conduct studies to identify focus areas for redevelopment, infill development, and reinvestment.
- Create a master plan for parks, open space and trails including inter-connected open space areas throughout the County.

- Update the Land Subdivision and Development Ordinance and Facility Standards Manual to align with the policies, strategies, and actions of this Plan.
- Continue to create and update watershed and environmental corridor management plans.
- Provide a resolution of intent to amend the Zoning Ordinance to the Board to consider replacing the existing noise contours for Washington Dulles International Airport and consider adopting the noise contours in the 2019 Washington Dulles International Noise Contour Map Update. **[Implemented with CPAM-2021-0001, ZMAP-2021-0011, and ZOAM-2021-0002, Airport Impact Overlay District Update]**
- Continue outreach and coordination with Loudoun’s Towns as described in Chapter 2.
- Develop a strategy to facilitate the development of high-speed wired and wireless telecommunication networks, including broadband technology, in the RPA.
- Develop performance standards for data centers to address design, landscaping, and compatibility that could eliminate the need for a special exception.
- Consider reducing the maximum allowable accessory dwelling unit square footage to the lesser of 1,200 square feet or 70 percent of the principle structure gross square footage and ground floor footprint for applicable zoning districts in the Suburban Policy Area, subject to performance standards.
- Develop performance standards to address design, landscaping, and compatibility for industrial uses in the Suburban Industrial and Mineral Extraction adjacent to residences and primary roads.
- Deployment of implementation strategies set forth in the *Loudoun County 2019 Countywide Transportation Plan*.

## Implementation Matrix

The ability to monitor and evaluate the progress of the *Loudoun County 2019 General Plan* is crucial to determining whether the Plan is achieving the community’s vision and goals. The implementation matrix that follows summarizes all action items found in the Plan that require subsequent County action, such as studies, analyses, program development, and regulatory changes. The implementation matrix is provided as a tool for the Board to use as the framework for developing a work program to implement the Plan.

*This page left blank for printing purposes.*

## IMPLEMENTATION MATRIX

Chapter 2	
Quality Development	
Action	Responsibility (Loudoun County Department or Agency)
<p><b>1.1.A.</b> Develop user-friendly, illustrative design guidelines. The design elements will promote an overall sense of place through design elements that in-part relate to block size, circulation and connectivity, streetscape and street sections, building form, placement (setbacks), orientation, articulation, parks and open spaces, public and civic uses, landscaping, and sustainability that give high quality form to the built environment.</p>	<p>Planning &amp; Zoning, Transportation &amp; Capital Infrastructure, Parks &amp; Recreation, Design Cabinet, Economic Development</p>
<p><b>1.1.B.</b> Create incentives that provide the opportunity to implement design guidelines.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>1.1.C.</b> The County will consider the development of zoning regulations and design standards that implement the design guidelines of this plan and any design guidelines that may be created in the future.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>2.1.A.</b> Develop and implement zoning regulations or design guidelines that support a compact, walkable development pattern in areas that area appropriate for pedestrian activity.</p>	<p>Planning &amp; Zoning, Building &amp; Development, Economic Development</p>
<p><b>3.1.A.</b> Develop flexible guidelines, regulations, and design standards that support diverse environments and experiences.</p>	<p>Planning &amp; Zoning, Parks &amp; Recreation, Design Cabinet, Economic Development</p>
<p><b>3.1.B.</b> Create incentives to ensure a mix of environments and experiences within a development.</p>	<p>Planning &amp; Zoning, Public-Private Partnership, Economic Development</p>
<p><b>4.1.A.</b> Create guidelines, zoning regulations, and/or design standards that ensure bike lanes, shared spaces, and paths of travel are created in areas where multimodal activity should be encouraged.</p>	<p>Planning &amp; Zoning, Transportation &amp; Capital Infrastructure, Parks &amp; Recreation, Economic Development</p>



<p><b>4.1.B.</b> Create guidelines, zoning regulations, and/or design standards that ensure traffic calming designs.</p>	<p>Transportation &amp; Capital Infrastructure, Design Cabinet, Economic Development</p>
<p><b>5.1.A.</b> Develop design guidelines, zoning regulations and/or design standards, and additional design elements that contribute to the quality of the human experience in the built environment.</p>	<p>Planning &amp; Zoning, Design Cabinet, Economic Development</p>
<p><b>6.1.A.</b> Create guidelines that address public seating, art, landscaping, outdoor rooms, safety, and other innovative elements that can maximize opportunities for the public.</p>	<p>Planning &amp; Zoning, Design Cabinet, Building &amp; Development, Economic Development</p>
<p><b>7.1.F.</b> Amend zoning regulations and design standards to implement place types. It may be necessary to utilize incentive provisions in order to achieve the maximum development intensity or residential density stated in this Plan for any individual place type.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>8.1.A.</b> Amend zoning regulations and design standards to require the provision of continuous, accessible, step-free paths of travel throughout new employment, retail, and mixed use development proposals.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>8.1.B.</b> Amend zoning regulations and design standards to incorporate accessible and inclusive design features into public and civic spaces such as community centers, parks, plazas, and playgrounds.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>8.1.D.</b> Review and revise county sign regulations to facilitate signage and way-finding at appropriate heights that incorporates Braille, tactile markings, and other accessibility improvements.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>8.2.A.</b> Incentivize the use of design mechanisms that ensure universal functionality within new construction.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>8.2.B.</b> Examine the feasibility of establishing a technical and financial assistance program that assists property owners and tenants of older structures in removing impediments to accessibility and incorporating universal design elements into renovation projects.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>

## Infill and Redevelopment

Action	Responsibility (Loudoun County Department or Agency)
<p><b>1.1.A.</b> Develop criteria to identify and prioritize areas for redevelopment, infill development, adaptive reuse, and reinvestment, with the Priority Commercial Redevelopment Areas Map serving as the source for initial areas of focus.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>1.1.B.</b> Create a common vision and objectives for areas identified for redevelopment, infill development, adaptive reuse, and reinvestment through a public process.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>1.1.C.</b> Address redevelopment, infill development, adaptive reuse, and reinvestment as part of community plans. Pay particular attention to a community's historic assets and function in areas with under recognized historic resources or limited historic resources protections, such as the legacy village cores of Ashburn, Arcola, and Old Sterling (see Legacy Village Cores Map).</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>1.1.D.</b> Identify methods for ensuring developers will follow through on commitments to communities that are products of a facilitated engagement process between the developer and the surrounding neighborhoods and developments.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>1.1.E.</b> Evaluate the creation of overlay districts to encourage reinvestment investment in priority/targeted areas where there is community support and buy-in.</p>	<p>County Government, Planning &amp; Zoning, Economic Development</p>
<p><b>1.2.A.</b> Conduct analysis of local market demands to determine what is needed to foster successful redevelopment.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>1.2.B.</b> Identify priority redevelopment areas and targeted strategies through the community planning process.</p>	<p>Planning &amp; Zoning</p>
<p><b>1.2.E.</b> Develop strategies to address displacement and housing affordability, when redevelopment occurs.</p>	<p>Family Services, Planning &amp; Zoning</p>
<p><b>1.2.H.</b> Develop criteria, such as site constraints, important resources, and community amenity gaps, to identify infill sites appropriate for use as park, civic, and open space rather than private development.</p>	<p>Planning &amp; Zoning, Transportation &amp; Capital Infrastructure, Parks &amp; Recreation</p>

<p><b>1.3.A.</b> Identify and prioritize neighborhoods with an emerging need for reinvestment and work with these communities to identify needs and desires and build support for reinvestment.</p>	<p>County Government, Public-Private Partnership</p>
<p><b>1.3.B.</b> Identify strategies to preserve and enhance a community’s sense of place, social fabric, and historic assets and functions.</p>	<p>Planning &amp; Zoning, Design Cabinet, Transportation &amp; Capital Infrastructure</p>
<p><b>1.3.C.</b> Identify, and include in the Capital Budget, capital facilities improvements necessary to support reinvestment in targeted areas.</p>	<p>County Government, Transportation &amp; Capital Infrastructure, Planning &amp; Zoning, Parks &amp; Recreation</p>
<p><b>1.3.D.</b> Identify and utilize funding sources for community reinvestment strategies.</p>	<p>County Government, Management &amp; Budget</p>
<p><b>1.3.E.</b> Educate the community about funding sources for home improvement and repair.</p>	<p>County Government, Family Services</p>
<p><b>1.3.G.</b> Develop incentives that encourage the private sector to improve retail and commercial establishments in targeted areas.</p>	<p>Public-Private Partnerships, Economic Development, County Government</p>
<p><b>1.4.B.</b> Develop and maintain a redevelopment webpage with information and resources for residents and developers.</p>	<p>Planning &amp; Zoning</p>
<p><b>1.4.C.</b> Develop flexible zoning regulations and design standards that account for existing conditions, allow for creative design and emerging development types, and provide certainty and clear direction for developers.</p>	<p>County Government, Planning &amp; Zoning</p>
<p><b>1.4.D.</b> Develop creative incentive programs for projects located within the priority areas for redevelopment identified on the Priority Commercial Redevelopment Areas Map and other qualifying projects, such as increases in permitted density where infrastructure is available, reduced fees, or expedited review processes.</p>	<p>Planning &amp; Zoning, Building &amp; Development</p>
<p><b>1.5.A.</b> Evaluate and implement the use of fiscal tools to incentivize redevelopment, such as tax increment financing (TIF) and public improvement districts (PID).</p>	<p>County Government, Management &amp; Budget, Economic Development</p>
<p><b>1.5.C.</b> Direct public investment and resources to priority areas to facilitate redevelopment.</p>	<p>County Government</p>
<p><b>1.5.D.</b> Establish programs to assist in business retention, expansion, and recruitment when commercial redevelopment projects occur.</p>	<p>Economic Development</p>

<p><b>1.6.B.</b> Create incentives for parcel assembly and funding opportunities for infrastructure improvements associated with redevelopment projects to alleviate private sector risk and costs.</p>	<p>County Government, Economic Development, Transportation &amp; Capital Infrastructure</p>
<p><b>1.7.A.</b> Develop zoning regulations and design standards that emulate existing lot patterns in the village cores of Ashburn and Arcola with buildings oriented to the street, encouraging pedestrian activity.</p>	<p>Planning &amp; Zoning</p>
<p><b>1.7.B.</b> Develop zoning regulations and design standards that promote a mix of land uses including residential, retail, office, institutional, public facilities, parks, playgrounds and other uses in the village cores where such uses do not otherwise conflict with existing uses or anticipated noise impacts from Washington Dulles International Airport.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>1.7.C.</b> Develop or maintain zoning regulations and design standards for the legacy village core of Ashburn that limit residential densities to four (4) units or fewer per acre.</p>	<p>Planning &amp; Zoning</p>
<p><b>1.7.D.</b> Develop zoning regulations and design standards that limit commercial, flex, or industrial building footprints to 10,000 SF and building heights to three (3) stories.</p>	<p>Planning &amp; Zoning</p>
<p><b>1.7.E.</b> Develop zoning regulations and design standards that discourage new automobile-oriented retail uses in the village cores.</p>	<p>Planning &amp; Zoning</p>
<p><b>1.8.A.</b> Develop zoning regulations and design standards that discourage the displacement of legacy flex, industrial, and employment uses by new large-scale uses.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>1.8.B.</b> Develop zoning regulations and design standards that expand opportunities for small-scale manufacturing in place types allowing flex, light industrial, industrial, and employment uses.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>1.8.C.</b> Amend zoning use definitions in industrial, flex, and employment-centered zoning districts to accommodate makerspaces, emerging small-scale manufacturing sectors, and the marketing and retail of goods produced on-site.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>2.1.B.</b> Establish collaborative programs and partnerships for adaptive reuse projects to foster entrepreneurship and encourage innovative ways to reuse buildings and sites.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>2.3.A.</b> Review zoning regulations, design standards, and building code regulations to identify regulatory encumbrances to adaptive reuse projects.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>2.3.B.</b> Develop zoning regulations and design standards that provide ample flexibility for adaptive reuse projects without compromising the health, safety, or welfare of users.</p>	<p>Planning &amp; Zoning, Economic Development</p>

<b>Urban Policy Areas</b>	
<b>Action</b>	<b>Responsibility (Loudoun County Department or Agency)</b>
<p><b>3.1.A.</b> Create partnerships with universities and private sector companies to foster growth of an Innovation District at the Loudoun Gateway Metrorail Station that supports workers and students in the advanced technology and science industries.</p>	<p>Economic Development, Public, Private &amp; Vocational Schools, Colleges and Universities, Public-Private Partnership</p>
<b>Suburban Policy Area</b>	
<b>Action</b>	<b>Responsibility (Loudoun County Department or Agency)</b>
<p><b>1.1.A.</b> Update the County’s adopted Small Area Plans and create new Community Plans and other appropriate plans which address the particular needs and guide the remaining build-out and/or redevelopment of specific areas within the Suburban Policy Area.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>1.1.B.</b> Establish design principles for individual communities within the Suburban Policy Area which ensure a high quality of development and redevelopment is achieved.</p>	<p>Planning &amp; Zoning, Design Cabinet, Economic Development</p>
<p><b>2.1.A.</b> Provide incentives for redevelopment, infill development, and adaptive reuse projects that will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities (see Infill and Redevelopment section).</p>	<p>County Government, Transportation &amp; Capital Infrastructure, Economic Development</p>
<p><b>2.1.H.</b> Create a regulatory framework that limits bed count and/or square footage of new housing unit to achieve affordability by design.</p>	<p>Family Services, Planning &amp; Zoning, Economic Development</p>

<p><b>3.1.D.</b> Establish an “opt-in” period to encourage owners of property in the Route 28 Highway Transportation Improvement District to opt into the updated/new Loudoun County Zoning Ordinance that is planned to be adopted to implement the 2019 Comprehensive Plan.</p>	<p>County Government</p>
<p><b>Transition Policy Area</b></p>	
<p><b>Action</b></p>	<p><b>Responsibility (Loudoun County Department or Agency)</b></p>
<p><b>1.1.B.</b> Develop zoning regulations and design standards to accommodate Transition Community Centers and Transition Compact Neighborhood Place Types to expand housing diversity and improve commercial viability.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>1.1.C.</b> Require new development to connect to Loudoun Water’s central water and wastewater systems and encourage existing development to connect.</p>	<p>Planning &amp; Zoning, Health Department, Loudoun Water, General Services</p>
<p><b>1.1.H.</b> Continue to perform watershed management plans to determine appropriate water quality and quality controls.</p>	<p>County Government, Planning &amp; Zoning</p>
<p><b>1.1.I.</b> Consider adoption of reservoir protection overlay districts that provide buffering and storm water quality controls.</p>	<p>County Government, Planning &amp; Zoning</p>
<p><b>2.1.A.</b> Develop a Master Plan for parks, open space, and shared-use trails in the TPA that: 1) builds on and links current planned trails and park areas, and 2) places greater emphasis on quality, connected, usable, and publicly accessible open space.</p>	<p>Parks &amp; Recreation, Planning &amp; Zoning, Transportation &amp; Capital Infrastructure,</p>
<p><b>2.1.D.</b> Establish programs and regulatory mechanisms to increase publicly accessible open space, consistent with County facilities plans, through easements, land dedications, and purchase.</p>	<p>County Government, Parks &amp; Recreation, Planning &amp; Zoning, General Services</p>
<p><b>3.1.A.</b> Create new Community Plans and other appropriate plans which address the particular needs and guide development within the Transition Policy Area.</p>	<p>County Government, Planning &amp; Zoning</p>
<p><b>4.1.C.</b> Establish zoning regulations and design standards that ensure new development does not hinder the operation of quarries.</p>	<p>Planning &amp; Zoning, Economic Development</p>

<b>Rural Policy Area</b>	
<b>Action</b>	<b>Responsibility (Loudoun County Department or Agency)</b>
<b>1.1.A.</b> Provide incentives for the consolidation of underutilized or undeveloped small lots into larger parcels for agricultural and rural economy uses.	Planning & Zoning, Economic Development
<b>1.1.B.</b> Consider cost-share initiatives to assist in establishing conservation easements, in order to reduce the land that is available for residential development and to provide landowners with financial options to support working farms, rural economy uses, and/or stewardship of the land.	Economic Development, Private Land Conservation Trust, Public-Private Partnership
<b>2.1.A.</b> Evaluate and revise zoning regulations and design standards to improve the design of subdivisions and clustered residential development by incorporating natural features and buffering from roadway and scenic byways.	Planning & Zoning, Building & Development
<b>3.1.A.</b> Evaluate and revise zoning regulations and development standards for rural economy uses. Such regulations and standards will address traffic capacity, safe and adequate road access, number of employees, site design standards (e.g., land disturbance, buffering, use intensity, siting, and architectural features), and public health, safety, and welfare.	Planning & Zoning, Design Cabinet, Transportation & Capital Infrastructure
<b>3.2.A.</b> Adopt zoning regulations and design standards that include new types of rural business and agricultural uses, permit flexibility for the sale of farm products, and promote rural tourism, hospitality uses, and similar kinds of rural business uses that are compatible with the character of the RPA.	Planning & Zoning, Economic Development
<b>3.2.B.</b> Evaluate and revise zoning regulations and design standards to permit a variety of accessory residential unit types, such as accessory apartments for seasonal farm laborers and year-round tenant housing, that support the rural economy.	Planning & Zoning, Economic Development
<b>3.2.C.</b> Create zoning regulations and design standards for existing and new types of rural recreational uses to evaluate their appropriateness and ensure their compatibility with the character of the RPA.	Planning & Zoning
<b>3.2.D.</b> Develop County parks with trail networks, cross country courses, and equestrian riding rings or other equestrian-related features.	Parks, Recreation & Community Services
<b>3.2.E.</b> Develop a publicly accessible multi-use trail network (i.e., pedestrian, bicycle, and equestrian) to link private and public lands in the RPA in partnership with nonprofit entities, landowners, and developers of rural properties.	Parks, Recreation & Community Services

<p><b>3.3.C.</b> Develop additional incentives to retain and encourage agricultural enterprises and support land preservation.</p>	<p>Economic Development, Planning &amp; Zoning, Building &amp; Development</p>
<p><b>3.3.D.</b> Retain the Rural Economic Development Council (REDC) as an advocacy and advisory committee on initiatives, programs, and policies that affect the economic growth and development of rural Loudoun County.</p>	<p>Economic Development</p>
<p><b>3.3.F.</b> Develop a strategy to facilitate the development of high-speed wired and wireless telecommunication networks, including broadband technology, to support rural businesses and residents in the RPA.</p>	<p>County Government</p>
<p><b>3.3.G.</b> Develop an update to ensure the Loudoun County Economic Business Development Strategy is updated on a regular basis.</p>	<p>Economic Development</p>
<p><b>3.4.A.</b> Regularly review, update, and enhance the Land Use Assessment Program and other voluntary agricultural programs, such as the Agricultural and Forestal District (AFD) program, to strengthen the rural economy, preserve rural character, and maintain the viability of farming.</p>	<p>Commissioner of the Revenue, Planning &amp; Zoning</p>
<p><b>3.5.A.</b> Adopt zoning regulations and design standards that facilitate the use of existing agricultural and historic structures.</p>	<p>Planning &amp; Zoning</p>
<p><b>3.7.A.</b> Maintain zoning regulations and design standards that protect the right to farm.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>Rural Villages</b></p>	
<p><b>Action</b></p>	<p><b>Responsibility (Loudoun County Department or Agency)</b></p>
<p><b>1.1.A.</b> Develop criteria to evaluate existing Rural Historic Villages and other historic crossroads communities, such as Airmont, Bloomfield, Howardsville, Morrisville, Unison and Willisville, to determine if their current designation is warranted, define and/or redefine community boundaries as necessary, and amend the Comprehensive Plan and Zoning Ordinance as appropriate.</p>	<p>Planning &amp; Zoning, Economic Development, HDRC, Heritage Commission</p>
<p><b>1.1.B.</b> Work with Rural Historic Villages to develop community plans that will support their community goals and address issues related to land use and zoning; economic development; natural, environmental, and historic resources; community facilities and services; water and wastewater; and transportation to maintain the character of the villages.</p>	<p>Planning &amp; Zoning, Economic Development, HDRC, Heritage Commission</p>
<p><b>1.1.C.</b> Evaluate and revise existing Rural Commercial (RC) zoning district regulations to implement Plan policies and design standards for development in the Rural Historic Villages that ensure compatibility with the settlement patterns and neighborhood scale.</p>	<p>Planning &amp; Zoning</p>



<p><b>1.1.F.</b> Evaluate and revise existing Rural Commercial (RC) zoning district regulations to implement Plan policies and design standards for commercial uses in the Rural Historic Villages that ensure compatibility with the settlement patterns and neighborhood scale.</p>	<p>Planning &amp; Zoning</p>
<p><b>1.2.B.</b> Evaluate the establishment of additional County Historic Districts in the Rural Historic Villages.</p>	<p>Planning &amp; Zoning , Local Preservation Organizations</p>
<p><b>1.3.A.</b> Adopt zoning regulations and design standards to encourage housing on smaller lots, allow accessory apartments attached to single-family residential units, and allow residential units above commercial/retail uses within the Rural Historic Villages to provide housing options.</p>	<p>Planning &amp; Zoning and Family Services</p>
<p><b>1.4.A.</b> Adopt zoning regulations, design standards and performance criteria that are specific to the types of small-scale, community-related commercial uses that the County encourages within the Rural Historic Villages.</p>	<p>Planning &amp; Zoning, Design Cabinet</p>
<p><b>Towns and JLMAs</b></p>	
<p><b>Action</b></p>	<p><b>Responsibility (Loudoun County Department or Agency)</b></p>
<p><b>1.1.A.</b> Continue to refer to jointly approved area management plans and refer to applicable Town policies on matters within the JLMA.</p>	<p>County Government</p>
<p><b>1.1.B.</b> Establish a regular coordination program with Towns to anticipate, monitor, and address development and planning matters.</p>	<p>County Government</p>
<p><b>1.1.C.</b> Undertake joint planning efforts in the JLMA.</p>	<p>County Government</p>
<p><b>1.1.D.</b> Participate as a partner with the Towns in their negotiations with VDOT and other agencies for road maintenance, safety improvements, and traffic calming, particularly along Routes 15, 50, 7, 9, and 287 in proximity to the Towns, and other changes in roads and/or transportation services that are consistent with both the Town’s and the County’s goals and priorities.</p>	<p>County Government</p>
<p><b>1.1.E.</b> Assess the effectiveness of the JLMA approach and associated zoning in protecting town character, maintaining a defining edge between the town and the rural areas, and/or as a tool for expanding economic development objectives. The defining edge is the boundary between two distinct land use patterns, whether</p>	<p>County Government</p>

<p>existing or desired. The edge may encompass an area that establishes a visual distinction, either as perceived from the road or from broader views of the landscape.</p>	
<p><b>1.1.F.</b> Add provisions to the rural and JLMA zoning districts specific to gateway corridors leading into each town that would establish deeper building setbacks variable building and lot configuration and orientation, hedgerow landscaping and buffering along the road, and other measures that retain or create a traditional rural or natural appearance leading into the town.</p>	<p>County Government</p>
<p><b>1.1.G.</b> Work with the Towns, interested group, and nonprofit foundations to identify open-space and agricultural-preservation strategies such as: donation of conservation easements, fee-simple purchase, clustering, and the possible creation of a conservation service district.</p>	<p>County Government</p>
<p><b>1.2.A.</b> Encourage the maintenance, improvement, or adaptive reuse of existing building stock in a manner that supports social and economic diversity within the community.</p>	<p>County Government</p>
<p><b>1.2.B.</b> Promote the commercial areas within the Towns as the preferred location of retail and service businesses, office development, and public and civic uses, as deemed appropriate by the Towns.</p>	<p>County Government</p>
<p><b>1.2.C.</b> Work with the Towns to enhance their economic base and maintain viable commercial areas through marketing, capital investments, and business attraction.</p>	<p>County Government</p>
<p><b>1.2.D.</b> Support annexations by the Towns when water and sewer extend into a JLMA in accordance with the annexation guidelines in this section and to resolve jurisdictional questions for property owners.</p>	<p>County Government</p>
<p><b>1.2.E.</b> Encourage site layouts in a JLMA that extend the existing and planned development patterns of the Town and surrounding JLMA.</p>	<p>County Government</p>
<p><b>1.3.A.</b> Encourage the continued use of existing public facilities located in the Towns and JLMAs and seek to maintain existing community-based schools as an important social and economic component of the communities.</p>	<p>County Government</p>
<p><b>1.3.B.</b> Cooperate with the Towns providing local law enforcement to ensure a coordinated enforcement strategy within the Town JLMAs.</p>	<p>County Government</p>
<p><b>1.3.C.</b> Support development of sidewalks and recreational, multi-use, and equine trails connecting the Towns to each other, to regional trail networks such as the W&amp;OD and C&amp;O Canal, and to area destinations.</p>	<p>County Government</p>
<p><b>1.4.A.</b> Collaborate with the Town of Leesburg on locating new facilities in the Town or JLMA.</p>	<p>County Government</p>

<p><b>1.4.B.</b> Maintain the planned land use of the JLMA consistent with Town of Leesburg land use policies; maintaining an emphasis on employment uses south of Route 7 and residential to the north of Route 7.</p>	<p>County Government</p>
<p><b>1.4.C.</b> Prohibit power generation plants in the Leesburg JLMA.</p>	<p>County Government</p>
<p><b>1.4.D.</b> Define the Town of Leesburg and JLMA as a distinct community separate from the Suburban and Rural Policy Areas by retaining rural policies and zoning to the north and south of the Town boundary and west of Evergreen Mills Road, and protecting the Goose Creek and Sycolin Creek floodplains to the east and south of the JLMA.</p>	<p>County Government</p>
<p><b>1.4.E.</b> Preserve the rural character of the viewsheds along Route 15 as it approaches the Town of Leesburg from the north and south by encouraging additional conservation easements and instituting design guidelines.</p>	<p>County Government</p>
<p><b>1.4.F.</b> Cooperate with the Town of Leesburg to complete the Potomac Heritage Trail and conserve open space along the Potomac River within the Town boundary and JLMA area.</p>	<p>County Government</p>
<p><b>1.4.G.</b> Coordinate with the Town of Leesburg and VDOT on the feasibility of planning and building Edwards Ferry Road as a two-lane facility with on-road bicycle accommodations. The County will work with the Town and VDOT to designate the road as a scenic by-way.</p>	<p>County Government</p>
<p><b>1.4.H.</b> Protect the viability of the Leesburg Airport by ensuring development in the JLMA does not impede Airport operations by continuing to prohibit residential development inside the 65 Ldn noise contour.</p>	<p>County Government</p>
<p><b>1.5.A.</b> Maintain the Town of Hamilton authority over subdivision applications within 1 mile of its corporate limits.</p>	<p>County Government</p>
<p><b>1.5.B.</b> Work with the Town of Hamilton to update the Comprehensive Plan for the Town and JLMA after the adoption of the <i>Loudoun County 2019 Comprehensive Plan</i> (within 2 years).</p>	<p>County Government</p>
<p><b>1.5.C.</b> Support the Town of Hamilton efforts to develop an identifiable town center to serve as a community focal point for the Town of Hamilton and the JLMA.</p>	<p>County Government</p>
<p><b>1.5.D.</b> Seek to improve street connectivity as the redevelopment and infill development occur in the JLMA and connect to the existing streets in the Town of Hamilton, where feasible, with roads that are compatible with traditional town designs.</p>	<p>County Government</p>
<p><b>1.5.E.</b> Work with the Town of Hamilton to effectively manage transportation systems around the Town and to explore methods of traffic calming on Business Route 7 through town including the possible use of a traffic circle at Route 7 and St. Paul Street.</p>	<p>County Government</p>

<p><b>1.5.F.</b> Maintain a distinct identity for the greater Hamilton community separate from the adjacent rural areas by establishing a greenbelt around the Town of Hamilton and the JLMA using conservation easements, passive and active parks and other means.</p>	<p>County Government</p>
<p><b>1.5.G.</b> Work with the Town of Hamilton to achieve a balanced land use pattern that will retain Hamilton’s historic small-town character in a rural setting and maintain its unique sense of place.</p>	<p>County Government</p>
<p><b>1.5.H.</b> Work with the Town of Hamilton to plan for a shared-use trail connecting to the Town of Purcellville.</p>	<p>County Government</p>
<p><b>1.6.A.</b> Encourage the establishment of a greenbelt around the Town using conservation easements, development design techniques and other means to help maintain the distinct edge and rural community identity of the Town of Hillsboro.</p>	<p>County Government</p>
<p><b>1.6.B.</b> Support the development of entry features into the town, to enhance the identity of the Town of Hillsboro as a gateway community.</p>	<p>County Government</p>
<p><b>1.6.C.</b> In recognition of Hillsboro’s historic role and future development as the center of a robust agricultural region, support expanded productive farming and rural economic development that will encourage new farmers, preserve and expand area farmland, boost tourism, stimulate county and regional markets for locally produced products and jobs, and expand entrepreneurial opportunities to Hillsboro area residents.</p>	<p>County Government</p>
<p><b>1.6.D.</b> Encourage the preservation of the natural, environmental, and heritage resources that contribute to the identity of Hillsboro.</p>	<p>County Government</p>
<p><b>1.6.E.</b> Oppose any increase in density and development outside of the Town of Hillsboro that does not retain the low density, farm landscape that provides the historic rural context for the Town.</p>	<p>County Government</p>
<p><b>1.6.F.</b> Work with the Town of Hillsboro and with VDOT to establish context-sensitive roadway design standards and to identify short and long-term solutions for improving the safety of Route 9 in western Loudoun and through Hillsboro that do not compromise the rural character of Hillsboro.</p>	<p>County Government</p>
<p><b>1.6.G.</b> Promote safety measures for pedestrians, cyclists, and farm vehicles along and across Route 9, Route 690, Route 719, and Route 812.</p>	<p>County Government</p>
<p><b>1.6.H.</b> Work with the Town of Hillsboro to establish a safe and adequate water supply and modern community wastewater collection and treatment system.</p>	<p>County Government</p>

<p><b>1.7.A.</b> Retain and recruit businesses that serve the needs of Lovettsville and northern Loudoun County residents and align with Town plans.</p>	<p>County Government</p>
<p><b>1.7.B.</b> Collaborate with the Town of Lovettsville in the planning and regulation of development along Route 287 north and south of Lovettsville to protect the scenic quality and the rural character of the road as it approaches the Town.</p>	<p>County Government</p>
<p><b>1.7.C.</b> Link the County’s greenways and trails system with the Town of Lovettsville’s internal trail and bikeways network to link Lovettsville with the C&amp;O Canal in Brunswick, Maryland, and the W&amp;OD bike path in Purcellville.</p>	<p>County Government</p>
<p><b>1.7.D.</b> Plan the location and design of County facilities within Lovettsville, in consultation with the Town of Lovettsville.</p>	<p>County Government</p>
<p><b>1.7.E.</b> Collaborate with the Town of Lovettsville and VDOT on transportation planning in and around Lovettsville to improve traffic safety in the Town of Lovettsville and to improve regional road networks and access to employment centers.</p>	<p>County Government</p>
<p><b>1.7.F.</b> Cooperate with the Town of Lovettsville, pursuant to County/Town Annexation Agreement/Corporate Boundary Line Adjustment Guidelines on boundary-line adjustments to resolve jurisdictional questions, to serve public and civic uses, and to support the Town of Lovettsville’s economic goals and priorities.</p>	<p>County Government</p>
<p><b>1.8.A.</b> Collaborate with the Town of Middleburg on zoning and development activities outside the Town but in its vicinity, with the goal of preserving the rural character of its gateways and surrounding environs.</p>	<p>County Government</p>
<p><b>1.8.B.</b> Be an active partner with the Middleburg community and interested preservation groups to identify open-space and agricultural preservation approaches such as conservation easements, land acquisition, and development standards to promote and implement open-space preservation around the Town of Middleburg that helps establish a greenbelt and protect the rural appearance of roadways leading into the Town.</p>	<p>County Government</p>
<p><b>1.8.C.</b> Protect rural roads and scenic views through measures such as revised state road improvement standards; scenic easements; historic corridor overlay zoning for John Mosby Highway (Route 50), Foxcroft Road (Route 626), and the Plains Road (Route 626); and development setbacks.</p>	<p>County Government</p>
<p><b>1.8.D.</b> Assist, when requested, in the promotion of tourism, as a means of increasing public support for preservation of the scenic and historic Middleburg area.</p>	<p>County Government</p>
<p><b>1.8.E.</b> Work with the Town of Middleburg to implement strategies that will preserve and enhance agriculture as the predominant use in the RPA around Middleburg.</p>	<p>County Government</p>

<p><b>1.9.A.</b> Establish a “defining edge” by implementing the uses and development pattern of the Rural North Place Type and by identifying the lands adjacent to the Town of Purcellville as priority open space areas for conservation easements.</p>	<p>County Government</p>
<p><b>1.9.B.</b> Work with the Town of Purcellville to plan for a trail extension that connects the W&amp;OD Trail with Franklin Park.</p>	<p>County Government</p>
<p><b>1.9.C.</b> Include setbacks, height limitations, and landscaping standards along Route 7, Route 287, and the Route 7 Bypass to establish and maintain a greenbelt or defining edge around the Town of Purcellville characterized by open space and tree-lined roadways.</p>	<p>County Government</p>
<p><b>1.9.D.</b> Encourage the use of frontage roads, coordinated development plans, and other means of minimizing the number of driveways along Route 7 and Route 287 leading into Purcellville.</p>	<p>County Government</p>
<p><b>1.9.E.</b> Encourage new commercial uses to locate in the Town of Purcellville before locating in the JLMA.</p>	<p>County Government</p>
<p><b>1.9.F.</b> Encourage owners of historic projects in the JLMA to place properties into a Purcellville or County Historic District.</p>	<p>County Government</p>
<p><b>1.9.G.</b> Protect historic structures in the context of their natural settings.</p>	<p>County Government</p>
<p><b>1.9.H.</b> Work with the Town of Purcellville to expand broadband connectivity for citizens and businesses.</p>	<p>County Government</p>
<p><b>1.10.A.</b> Development within the Round Hill JLMA will comply with the Round Hill Area Management Plan and Round Hill Comprehensive Plan and adopted policies applicable to the JLMA.</p>	<p>County Government</p>
<p><b>1.10.C.</b> Encourage housing for the elderly that will allow residents to remain in the Town of Round Hill.</p>	<p>County Government</p>
<p><b>1.10.D.</b> Encourage rural economy business development in the greater Round Hill Area to provide local goods, services and jobs to Town of Round Hill residents and visitors.</p>	<p>County Government</p>
<p><b>1.10.E.</b> Oppose any increase in density and development outside of the JLMA that is not consistent with the traditional rural character of western Loudoun County.</p>	<p>County Government</p>
<p><b>1.10.F.</b> Avoid high density development between the current boundaries of Purcellville and Round Hill and expand open space around Franklin Park to help maintain a greenbelt between communities.</p>	<p>County Government</p>
<p><b>1.10.G.</b> Enhance the gateways to the Town of Round Hill by developing features or retaining a clear distinction between the surrounding rural area and the edge of the town. Techniques may include measures to protect existing</p>	<p>County Government</p>

<p>trees, hedgerows, viewsheds, and vistas; design guidelines for lot configuration to retain the rural lot pattern; new landscaping and entrance features and other techniques.</p>	
<p><b>1.10.H.</b> Support development of sidewalks, trails, and linear parks that connect civic and public facilities with residential and commercial neighborhoods in the Town of Round Hill and JLMA and extend to Franklin Park and the W&amp;OD Trail.</p>	<p>County Government</p>
<p><b>1.10.I.</b> Coordinate transportation planning with the Town of Round Hill to ensure that traffic generated from development within the County does not adversely affect Round Hill. The County will work with the Town of Round Hill on traffic calming measures.</p>	<p>County Government</p>
<p><b>2.2.A.</b> Prior to approval of development in the JLMA beyond current zoning, require written assurance from the central system provider or the adjacent town, for a municipal system, that water and sewer will be provided.</p>	<p>County Government</p>
<p><b>2.2.B.</b> Consider potential impacts of surrounding development on Town wells during the development review process.</p>	<p>County Government</p>
<p><b>2.2.C.</b> Any future expansion of municipal (Town) sewer and water into the County JLMA will support development that is consistent with the goals and policies of the County and Town adopted plans.</p>	<p>County Government</p>
<p><b>2.2.D.</b> Retain the option to use shared or alternative sewer and water facilities to serve Town and County owned and operated public facilities upon agreement between the Town and the County.</p>	<p>County Government</p>
<p><b>2.2.E.</b> Permit the extension of municipal sewer and water into the Rural Policy Area only to serve public facilities or to address a potential public health risk. (See also, Chapter 6, Fiscal Management and Public Infrastructure, Rural Sewer and Water)</p>	<p>County Government</p>
<p><b>Chapter 3</b></p>	
<p><b>Natural, Environmental, and Heritage Resources</b></p>	
<p><b>Action</b></p>	<p><b>Responsibility (Loudoun County Department or Agency)</b></p>
<p><b>1.1.C.</b> Adopt zoning regulations and development standards that implement a process identifying natural, environmental, and heritage resources worthy of preservation and developing around those resources as part of all land development.</p>	<p>Planning &amp; Zoning</p>

<p><b>1.1.D.</b> Update the <i>Facilities Standards Manual</i>, the <i>Land Subdivision and Development Ordinance</i>, and other development standards to implement the natural, environmental, and heritage policies in this Plan.</p>	<p>Building &amp; Development and Planning &amp; Zoning</p>
<p><b>1.1.G.</b> Direct public investment and resources toward completing a natural, environmental, and heritage resource network and recapturing natural and heritage resources in developed areas.</p>	<p>Public-private partnerships</p>
<p><b>1.2.A.</b> Study and, if feasible, aid in the establishment of a public-private conservation partnership to facilitate communication, grants, easements, education, and partnership opportunities to conserve and protect natural, environmental, and heritage resources.</p>	<p>Planning &amp; Zoning, Management &amp; Budget</p>
<p><b>1.3.A.</b> Provide incentives for innovative design and support collaborative public-private-community partnerships for program implementation including provisions for awards of certificates of excellence in environmental design for the public and private sectors.</p>	<p>Planning &amp; Zoning, Economic Development</p>
<p><b>River and Stream Corridor Resources</b></p>	
<p><b>Action</b></p>	
<p><b>2.1.A.</b> Amend zoning regulations and development standards, including but not limited to the Floodplain Overlay District (FOD) and Scenic Creek Valley Buffer sections, to address the objectives of the RSCR policies. Zoning regulations and development standards will establish performance standards and best management practice (BMP) requirements to ensure the health and biological integrity of the river and stream corridors and minimize adverse impacts.</p>	<p><b>Responsibility (Loudoun County Department or Agency)</b></p> <p>Building &amp; Development, Planning &amp; Zoning</p>
<p><b>2.1.B.</b> Develop and implement a watershed management plan for each watershed, establishing development guidelines and performance standards to protect water quality.</p>	<p>Building &amp; Development</p>
<p><b>2.1.C.</b> Establish appropriate regulations for Catoctin Mountain, Short Hill Mountain, and the Blue Ridge Mountains to limit diversions of water from the Catoctin and Goose Creek headwaters and prevent stream pollution.</p>	<p>Building &amp; Development, Planning &amp; Zoning</p>
<p><b>2.1.E.</b> Work with the incorporated towns, Loudoun Water, and other organizations and agencies to establish overall water quality goals and specific standards for individual streams and river and stream corridors, consistent with County RSCR objectives and policies.</p>	<p>County Government</p>
<p><b>2.2.A.</b> Amend zoning regulations and development standards to establish a minimum 100-foot stream buffer to protect rivers and streams when floodplains and adjacent steep slopes do not extend beyond either bank by 100 feet.</p>	<p>County Government, Building &amp; Development</p>



<p><b>2.2.B.</b> Amend zoning regulations and development standards to establish a 50-foot management buffer as part of the RSCR surrounding floodplains and adjacent steep slopes. Specific criteria for allowable reductions in the 50-foot management buffer should be included to ensure that reductions do not adversely impact the other elements of the RSCR. The RSCR 50-foot management buffer will not be added to the 100-foot minimum stream buffer.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.2.C.</b> Develop and use incentives to encourage property-owners to establish and maintain a 100-foot minimum riparian stream buffer.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.3.A.</b> Develop appropriate standards and regulations to protect natural streams from the harmful effects of increased stormwater volume, velocity, and pollutant loads resulting from development.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.3.C.</b> Establish incentives and/or a funding program for reforestation, SWM/BMP projects, and SWM/BMP retrofits.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.3.F.</b> Support and incentivize reforestation for degraded forested areas in upper stream reaches that do not include Major Floodplain and promote natural regeneration within the limits of the Major Floodplain to mitigate the loss of native canopy coverage as a result of construction.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.3.G.</b> Develop and maintain standards for activities that propose pollution sources such as the storing and dispensing of fossil fuels, chemical storage, and sale or transfer of potential contaminants.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.4.D.</b> Prepare and implement TMDL Action Plans, as necessary to meet TMDL requirements. The Action Plans, designed to improve the County's surface water quality may include working with other entities, such as the Loudoun Soil and Water Conservation District (LSWCD) and Virginia Cooperative Extension-Loudoun (VCE-Loudoun).</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.5.C.</b> Develop and implement a watershed overlay district for all public water supply reservoir watersheds, establishing more stringent development guidelines and performance standards to protect water quality.</p>	<p>County Government, Building &amp; Development</p>

<p><b>2.5.D.</b> Develop and implement a Potomac River shoreline management plan and seek to coordinate this effort with adjacent jurisdictions (local, state, and regional organizations, advisory boards, and citizen groups). This plan should include:</p> <ul style="list-style-type: none"> <li>i. The boundaries of the study area,</li> <li>ii. A comprehensive natural resources inventory,</li> <li>iii. Existing and proposed private/public water access entry points,</li> <li>iv. Policy recommendations for river corridor management and protection,</li> <li>v. A process for integrating the participating groups, and</li> <li>vi. A plan for acquiring and managing open space corridors along the Potomac River.</li> </ul>	<p>County Government, Building &amp; Development</p>
<p><b>2.5.E.</b> Establish appropriate standards and land uses in consultation with Loudoun Water and/or incorporated towns to protect drinking water supplies.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.5.F.</b> Develop a community-based Source Water Protection Plan in cooperation with Loudoun Water and other agencies and organizations.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.6.A.</b> Develop and implement a comprehensive groundwater protection strategy to ensure adequate and sustainable water supply.</p>	<p>County Government</p>
<p><b>2.6.B.</b> Develop and implement a comprehensive pollution management program to monitor and protect groundwater resources.</p>	<p>County Government, Building &amp; Development</p>
<p><b>2.6.F.</b> Assess the recharge and consumption rates for groundwater in each watershed by analyzing data from groundwater level monitoring and stream flow measurements. If negative impacts are detected, the information will be presented to the Board of Supervisors for appropriate action.</p>	<p>County Government</p>
<p><b>2.6.G.</b> Develop standards for uses that consume and/or require the usage of large quantities of water in those areas that could affect neighboring wells and aquifers.</p>	<p>County Government</p>
<p><b>2.6.I.</b> Study best practices/guidelines to reduce impervious surfaces and minimize increases in post-development runoff peak rate, frequency, volume.</p>	<p>County Government</p>

## Soils and Geological Resources

Action	Responsibility (Loudoun County Department or Agency)
<b>3.1.E.</b> Identify pollution sources and establish appropriate standards for reducing pollution in areas underlain by limestone.	County Government, Building & Development, Planning & Zoning
<b>3.2.A.</b> Develop a public education program that will focus on communicating advantages associated with private protection of Prime Agricultural Soils.	County Government, Building & Development
<b>3.3.H.</b> Review and amend zoning regulations and development standards to ensure consistency with the mountinside area policies.	County Government, Building & Development, Planning & Zoning
<b>3.3.I.</b> Establish performance standards for unavoidable development on questionable soils as defined by the International Building Code.	County Government, Building & Development, Planning & Zoning

## Forests, Trees, and Vegetation

Action	Responsibility (Loudoun County Department or Agency)
<b>4.1.B.</b> Incentivize and encourage the preservation of existing trees within required landscape buffer areas and for screening of uses.	County Government, Building & Development, Planning & Zoning
<b>4.1.C.</b> Require the removal of invasive plant species during the development process.	County Government, Building & Development, Planning & Zoning
<b>4.1.D.</b> Develop and adopt a Tree Preservation Ordinance.	County Government, Building & Development, Planning & Zoning

<p><b>4.1.E.</b> Inventory and map trees and native vegetative resources to be preserved or managed in accordance with County standards and create and maintain a database of these resources to include, but not be limited to, old growth forests, significant tree stands, specimen trees, heritage trees, and State or National Champion trees.</p>	<p>Building &amp; Development and Mapping &amp; Geographic Information</p>
<p><b>4.2.A.</b> Prioritize the planting of native vegetation, specifically along those corridors that provide connections to other natural, environmental, and heritage resources.</p>	<p>County Government, Building &amp; Development, Planning &amp; Zoning</p>
<p><b>4.2.B.</b> Develop Countywide goals and objectives for the creation, maintenance, and preservation of the County's tree canopy.</p>	<p>County Government, Building &amp; Development, Planning &amp; Zoning</p>
<p><b>Historic, Archaeological, and Scenic Resources</b></p>	
<p><b>Action</b></p>	<p><b>Responsibility (Loudoun County Department or Agency)</b></p>
<p><b>5.1.B.</b> Evaluate the <i>Heritage Preservation Plan</i> every five years and update if necessary.</p>	<p>Planning &amp; Zoning, HDRC, Heritage Commission</p>
<p><b>5.1.C.</b> Require an archaeological and historic resources survey for all development applications. This survey must include a plan for recordation of identified resources and measures for preservation, mitigation, and adaptive reuse. The County will maintain a repository for artifacts recovered from required surveys; such artifacts will be used for research and public education purposes.</p>	<p>County Government, HDRC, Heritage Commission</p>
<p><b>5.1.D.</b> The County will update its cultural resource inventory through the land development process and County-sponsored historic surveys.</p>	<p>County Government, HDRC, Heritage Commission</p>
<p><b>5.1.E.</b> Evaluate the historic or archaeological value of inventoried resources based on criteria set forth in the Secretary of the Interior's Standards for Archaeology and Historic Preservation, which include historic context and site integrity. The County will evaluate resources for consideration for state and National Registers. Identify, through survey and community outreach, locally important historic and archaeological resources that meet criteria for listing on the County Heritage Register as outlined in the Heritage Preservation Plan.</p>	<p>County Government, HDRC, Heritage Commission</p>
<p><b>5.1.F.</b> Identify, delineate, and map historic cemeteries, burial grounds, and graves to ensure they are protected from destruction or neglect. Ensure that adequate buffers are provided around these sites to protect them during the development process.</p>	<p>Mapping &amp; Geographic Information, HDRC, Heritage Commission</p>

<p><b>5.1.G.</b> Identify African American and Native American cultural resources, document them in the County’s database of heritage resources, and create policies and programs that protect, preserve, and interpret these resources for the benefit of County residents.</p>	<p>Planning &amp; Zoning, HDRC, Heritage Commission</p>
<p><b>5.1.I.</b> Conduct a staff assessment to determine historic significance prior to issuing a demolition permit for a structure that is 50 years old or older.</p>	<p>Planning &amp; Zoning, HDRC, Heritage Commission</p>
<p><b>5.1.M.</b> Prioritize the adaptive reuse of historic structures that are of local, regional, or national significance as the primary method of preserving the County’s diverse collection of historic architecture within the framework of sustainable development.</p>	<p>Planning &amp; Zoning, HDRC, Heritage Commission</p>
<p><b>5.1.N.</b> Amend zoning regulations and development standards to ensure the viability of adaptive reuse, particularly in the County’s villages where the ability to reuse historic structures is vital to the historic character and vitality of these communities.</p>	<p>Planning &amp; Zoning, HDRC, Heritage Commission</p>
<p><b>5.1.O.</b> Prepare and implement corridor management plans, including identifying and defining viewsheds for the County’s Scenic Rivers in order to protect their natural and scenic quality.</p>	<p>Mapping &amp; Geographic Information, Planning &amp; Zoning, HDRC, Heritage Commission</p>
<p><b>Natural Heritage Resources</b></p>	
<p><b>Action</b></p>	<p><b>Responsibility (Loudoun County Department or Agency)</b> County Government</p>
<p><b>6.2.B.</b> Identify essential wildlife corridors and encourage protection of these areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development design, and other means.</p>	

## Complementary Elements

Action	Responsibility (Loudoun County Department or Agency)
<p><b>7.1.B.</b> Evaluate and implement methods to reduce emissions of airborne pollutants including particulates, greenhouse gases, ozone precursors, and other gases known to adversely affect human and environmental health.</p>	<p>County Government, Planning &amp; Zoning, Building &amp; Development</p>
<p><b>7.2.D.</b> Continue to enforce and update with the most current information, as appropriate, the Airport Impact Overlay District included as part of the Loudoun County Zoning Ordinance.</p>	<p>County Government</p>
<p><b>7.2.F.</b> Consider replacing the existing noise contours for Washington Dulles International Airport to reflect the noise contours in the 2019 Washington Dulles International Noise Contour Map Update.  <b>[Implemented with CPAM-2021-0001, ZMAP-2021-0011, and ZOAM-2021-0002, Airport Impact Overlay District Update. However, the Ldn 65 or higher aircraft noise impact area is revised to exclude areas already approved for residential development through proffered rezoning.]</b></p>	<p>County Government</p>
<p><b>7.3.A.</b> Update lighting standards. <i>(See Chapter 3 for more information)</i></p>	<p>County Government, Building &amp; Development</p>

## Sustainability

Action	Responsibility (Loudoun County Department or Agency)
<p><b>8.1.A.</b> Update and implement the County Energy Strategy (CES) to account for rapid growth in population and high energy demand uses, technological changes allowing improved energy storage, changing renewable energy markets, and the impacts of climate change.</p>	<p>General Services, Transportation &amp; Capital Infrastructure, Planning &amp; Zoning</p>
<p><b>8.1.D.</b> Use the data from benchmarking the energy use to set policy and regulations in the County.</p>	<p>General Services</p>
<p><b>8.1.E.</b> Whenever feasible, build County-constructed facilities to LEED Silver, or equivalent, standards.</p>	<p>General Services, Building &amp; Development</p>
<p><b>8.1.G.</b> Continue to monitor the efforts of MWCOC.</p>	<p>County Government</p>
<p><b>8.1.I.</b> Incorporate natural, environmental, and heritage resources and BMPs into County Energy Strategy.</p>	<p>General Services,</p>

		Planning & Zoning
<b>8.1.L.</b> Develop a Sustainability Plan for the County that provides the framework to balance economic development, social well-being, and environmental health.		County Government, General Services, Planning & Zoning
<b>8.2.B.</b> Research and support opportunities for micro-grid energy and district energy systems.		General Services
<b>8.2.D.</b> Prioritize public investment in energy efficient, clean products, and infrastructure.		General Services
<b>8.3.A.</b> Create partnerships with universities and private sector companies to foster growth of a sustainable economy that supports workers and students in the advanced technology and science industries.		County Government LCPS, Local Sustainability Organizations, Public- Private Partnership
<b>9.1.B.</b> Establish incentives for sustainable development.		Planning & Zoning, Building & Development
<b>9.5.A.</b> Adopt solar zoning and permitting best practices for accessory use solar development.		Planning & Zoning, Building & Development
<b>9.5.B.</b> Become certified as a “solar-ready” community under the Department of Energy’s SolSmart program.		General Services
<b>Chapter 4</b>		
<b>Housing</b>		
<b>Action</b>		<b>Responsibility (Loudoun County Department or Agency)</b>
<b>1.1.B.</b> Amend zoning regulations to accommodate more innovative and flexible density, building height, lot size, lot line, parking, setback, and design standards through the implementation of a planned unit development (PUD) ordinance.		County Government, Planning & Zoning, Family Services
<b>1.1.D.</b> Develop zoning regulations and design standards that facilitate innovative, lower cost, compact residential and mixed-use development that emphasizes the physical form and the character of the built environment and seamlessly integrates uses.		County Government, Planning & Zoning, Family Services, Building & Development

<p><b>1.1.E.</b> Amend zoning regulations and design standards to permit accessory housing product types (e.g., carriage houses, accessory apartments, and cottages) in residential and mixed use zoning districts and incentivize the integration of universal design features in accessory units.</p>	<p>County Government, Planning &amp; Zoning, Family Services, Building &amp; Development</p>
<p><b>1.1.F.</b> Amend zoning regulations to expand the number of districts where manufactured housing, accessory units, and alternative housing types are allowed (e.g., small lot, zero lot-line, micro-units, maximum unit sizes, and innovative housing types).</p>	<p>County Government, Planning &amp; Zoning, Family Services, Building &amp; Development</p>
<p><b>1.1.G.</b> Develop regulations and standards by which affordable housing development can be approved as a by-right use.</p>	<p>County Government, Planning &amp; Zoning, Family Services, Building &amp; Development</p>
<p><b>1.2.A.</b> Amend zoning regulations and design standards to incorporate density bonuses and other incentives into appropriate zoning districts to encourage the provision of housing to address the County's unmet housing needs in areas currently served by or planned for mass transit.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>1.3.A.</b> Identify alternatives in calculating the costs of development for the impact on capital facilities (such as a rating system) to reduce costs and to encourage diversity in unit types produced. Explore the use of square footage and/or number of bedrooms to assess capital facility costs associated with a broad range of unit types to encourage the development of needed unit types (for example, studio and one bedroom apartments, smaller homes).</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>1.4.A.</b> Amend zoning regulations and design standards to incentivize the integration of universal design elements in residential units and in the design of neighborhoods.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>1.5.B.</b> Incentivize the provision of age-restricted housing units for residential or mixed-use development proposals in transit centers and other areas planned for an integrated mix of uses to support older adults' option to live in close proximity to transit, retail, service, and entertainment uses.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>1.6.A.</b> Provide incentives to encourage zoning map amendments or zoning concept plan amendments on previously entitled properties that increase the provision of a mix of smaller housing types and affordably priced housing.</p>	<p>County Government, Family Services, Planning &amp; Zoning County Government, Family Services, Planning &amp; Zoning</p>



<p><b>1.6.B.</b> Research and implement effective incentives, such as appropriate density increases for the provision of housing focused on the County’s unmet housing need proximate to major employment centers and public transit such as Silver Line Metrorail stations, as well as the offset of capital facilities contributions to reduce housing development costs to foster a continuum of housing affordability for workers in Loudoun.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>1.7.A.</b> Develop zoning regulations and design standards to implement form-based approaches for infill and redevelopment areas that facilitate the development of “missing middle” housing product types and affordable prices.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>2.2.A.</b> Create an inventory of housing stock using County assessment data that identifies the type of unit, its location within the County, and general characteristics of the units.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>3.1.A.</b> Develop an Unmet Housing Needs Strategic Plan, consistent with the adopted <i>Loudoun County 2019 Comprehensive Plan</i>, that specifically identifies strategies, actions, programs, and best practices to address the County’s current and future unmet housing needs. Such plan should include, but is not limited to, down-payment assistance programs, utilization of housing trust funds, and home purchase programs, and should be developed prior to the approval of any zoning map amendments requesting higher densities planned in the Urban Policy Area outside the Metrorail Service Districts, Suburban Policy Area, and the Transition Policy Area. The plan would include estimates on unmet housing needs, establish development targets, and evaluate how housing programs address those needs every five years.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>3.1.C.</b> Develop zoning regulations and design standards that remove barriers and incentivize the development of housing affordable to households at or below 100 percent AMI in all residential and mixed-use development.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>3.1.D.</b> Reduce capital facilities proffer expectations as a means of incentivizing the provision of housing affordable to households earning less than 100 percent AMI in new transit-oriented development.</p>	<p>County Government, Family Services, Planning &amp; Zoning County Government, Family Services, Planning &amp; Zoning</p>
<p><b>3.1.E.</b> Create an expedited permit process to fast-track applications for developers who commit to providing additional units affordable to households earning less than 100 percent AMI.</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>
<p><b>3.1.F.</b> Provide incentives such as those included in the Affordable Dwelling Unit regulations of the Zoning Ordinance to support Low Income Housing Tax Credit projects to encourage zoning map amendments or zoning</p>	<p>County Government, Family Services, Planning &amp; Zoning</p>

concept plan amendments for properties subject to previous legislative zoning approvals when they increase the provision of housing affordable to households earning less than 100 percent AMI.	County Government, Family Services, Planning & Zoning
<b>3.1.G.</b> Strengthen Affordable Dwelling Unit regulations in the Loudoun County Zoning Ordinance and the County Codified Ordinances, to the greatest extent that the Code of Virginia allows, to increase the development of housing that helps address the County’s unmet housing needs in all residential and mixed-use development.	County Government, Family Services, Planning & Zoning
<b>3.1.I.</b> Develop effective incentives that enable development to meet unmet housing needs to include housing for households with incomes at or below 30 percent AMI and 50 percent AMI, which is the area of greatest need.	County Government, Family Services, Planning & Zoning
<b>3.2.A.</b> Identify and designate dedicated local funding sources to support the County’s plan to provide a continuum of housing.	County Government, Family Services, Planning & Zoning
<b>3.4.A.</b> Expand and increase the funding for the Down Payment and Closing Cost Assistance and Public Employee Grant programs to help households earning up to 100% AMI purchase a home.	County Government, Family Services, Planning & Zoning
<b>3.4.B.</b> Create and implement home buyer readiness financial literacy classes to help educate first-time home buyers.	County Government, Family Services, Planning & Zoning
<b>3.4.D.</b> Work with employers located in the County to develop workforce housing financial assistance programs such as direct loans, gap financing, revolving loans, credits, and grants.	County Government, Family Services, Planning & Zoning
<b>3.5.B.</b> Develop a housing ambassador program to Loudoun’s incorporated towns to raise awareness and provide technical assistance to assist them in establishing and maintaining programs that address their unmet housing needs.	County Government, Family Services, Planning & Zoning
<b>3.5.C.</b> Conduct regular focus groups with the building industry, the CEO Cabinet, and major employers.	County Government, Family Services, Planning & Zoning
<b>3.5.D.</b> Convene an Annual Housing Summit to check in with stakeholders on issues and successes.	County Government, Family Services, Planning & Zoning
<b>3.5.F.</b> Implement a robust community outreach plan to promote the importance of housing to Loudoun’s quality of life and the economy.	County Government, Family Services, Planning & Zoning

**Chapter 5  
Economic Development**

Action	Responsibility (Loudoun County Department or Agency)
<b>1.5.A.</b> Embed staffing resources in each cluster/overlay to attract or expand businesses using industry expertise, relationships, and earned reputation.	County Government, Economic Development, Planning & Zoning
<b>1.5.D.</b> Create mechanisms for the rural economy to maintain its status as a regional agricultural leader and local advantage.	County Government, Economic Development
<b>1.5.G.</b> Strategically use economic incentives as needed for attraction and retention.	County Government, Economic Development, Planning & Zoning
<b>2.6.A.</b> Establish “Technology Zones” for the encouragement of new and expanding technology businesses.	County Government, Economic Development, Planning & Zoning
<b>2.6.C.</b> Periodically update the County’s zoning regulations and design standards to keep pace with innovation in the marketplace.	County Government, Economic Development, Planning & Zoning
<b>3.4.C.</b> Develop programs to incentivize construction of attainable workforce housing.	County Government, Economic Development, Planning & Zoning
<b>3.4.D.</b> Consider using the Economic Development Authority for property acquisition to bank land for public-private partnerships on workforce housing projects.	County Government, Economic Development, Planning & Zoning
<b>5.2.A.</b> Establish “Tourism Zones” that would enable the County to provide tax incentives and regulatory, and would provide a mechanism to assist developers of authorized tourism projects to obtain gap financing and make payments thereon.	County Government, Economic Development

## Chapter 6 Fiscal Management and Public Infrastructure

Action	Responsibility (Loudoun County Department or Agency)
<b>1.1.B.</b> Co-locate public safety and other public facilities whenever it will improve service efficiencies.	Board of Supervisors, Transportation & Capital Infrastructure
<b>1.1.G.</b> Establish an expansion plan for the Fire and Rescue Training Academy based on a needs assessment of the existing campus as the needs of LCFR and the County increase. Ensure the requirements of Fire and Rescue training remain a priority during the development of surrounding areas.	County Government, Transportation & Capital Infrastructure, Fire and Rescue
<b>1.3.J.</b> The County will acquire school sites in advance of LCSB’s recognized short and long-term future needs to minimize school transportation costs and to structure future planned growth.	Transportation & Capital Infrastructure, Loudoun County School Board
<b>1.4.B.</b> Support the acquisition of land and development of facilities such as the Potomac Heritage National Scenic Trail.	Board of Supervisors
<b>1.4.C.</b> Work with the United States Department of the Interior, the Virginia Tech Conservation Management Institute, the Virginia Department of Historic Resources, NOVA Parks, and other local, regional, and state organizations and the incorporated Towns to define and recommend areas for open space preservation and development of a trail network that links the County’s natural, historic, and recreational resources.	County Government
<b>1.4.H.</b> Identify opportunities, such as public/private partnerships and co-location, to work with the private sector to provide public facilities.	Public –Private partnerships
<b>2.1.A.</b> Create and maintain development regulations that require an adequate water supply, such as dry hydrants or tanks, for new residential subdivisions of more than five dwelling units when an alternative water source is not available on site.	County Government, Fire and Rescue
<b>2.1.B.</b> Encourage and offer incentives to voluntarily provide sprinklers in new residential construction.	County Government, Fire and Rescue

<p><b>2.2.C.</b> Establish a program that retrofits existing traffic signals, subject to VDOT approval, with signal preemption equipment to provide priority access to emergency vehicles responding to a call.</p>	<p>County Government, Fire and Rescue</p>
<p><b>2.2.E.</b> Ensure that development regulations address the installation and maintenance of emergency apparatus access roads for fire and rescue resources.</p>	<p>County Government, Fire and Rescue</p>
<p><b>3.1.B.</b> Establish programs and regulatory mechanisms to increase publicly accessible open space through easements, land dedications, and purchase; ensure that such programs and mechanisms are consistent with County facilities plans.</p>	<p>Parks, Recreation &amp; Community Services</p>
<p><b>3.1.H.</b> Seek through public purchase, proffer, donation, or third-party easement, the preservation of natural areas and the development of linear parks, recreation space, and trails.</p>	<p>Parks, Recreation &amp; Community Services</p>
<p><b>3.1.I.</b> Continue the Open Space Preservation Program, to the extent permitted by Virginia Code Section 15.2-2303.4, linking the loss of open space associated directly with low-density land use to the provision of open space or funds towards the purchase of open space that provides publicly accessible and usable open space. (See more information in Chapter 6)</p>	<p>Board of Supervisors</p>
<p><b>3.1.J.</b> Institute a program whereby the County facilitates acquisition of conservation easements by others by providing assistance such as a revolving loan program to reduce or defer the landowner cost of establishing conservation easements. The program should emphasize protecting the priority open space areas that are identified in this Plan that are not otherwise protected.</p>	<p>Planning &amp; Zoning, Building &amp; Development</p>
<p><b>3.1.K.</b> Encourage protection of the following priority open space areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development design, and other means.</p>	<p>Board of Supervisors, Planning Commission, Planning &amp; Zoning</p>
<p><b>3.1.L.</b> Amend the zoning ordinance and development regulations as needed to permit a percentage of the open space required on an individual site to be met through off-site permanent open space that creates a more usable, desirable, or environmentally significant open space (see 3.1.J, above) located in the same planning subarea identified in the latest Capital Needs Assessment.</p>	<p>Board of Supervisors, Planning Commission, Planning &amp; Zoning</p>
<p><b>4.1.A.</b> Pursue funding sources to rehabilitate homes that currently lack adequate sewer and water systems.</p>	<p>Board of Supervisors</p>
<p><b>4.2.B.</b> Prohibit connection to water distribution and wastewater collection systems when such requires crossing land outside a defined water or sewer service area, except as allowed herein.</p>	<p>Board of Supervisors</p>
<p><b>4.4.C.</b> Expand the use of Loudoun Water’s reclaimed water network.</p>	<p>Board of Supervisors, Loudoun Water</p>

<p><b>4.4.G.</b> Construct new central wastewater and water lines and facilities in a manner that causes the least environmental risk and visual disruption.</p>	<p>Board of Supervisors, Health Department</p>
<p><b>4.5.A.</b> Prohibit extension of central water and wastewater service into the Rural Policy Area, except to address a public health threat to an existing rural community or to serve public facilities on contiguous parcels immediately adjacent to the western boundary of the Transition Policy Area.</p>	<p>Board of Supervisors</p>
<p><b>4.5.B.</b> Institute a wellhead protection program in all areas not served by central system facilities to ensure adequate water quality.</p>	<p>County Government</p>
<p><b>4.5.F.</b> Implement an inspection and maintenance program for conventional on-site sewage disposal systems and provide homeowner educational materials on this and related well and septic safety for residents in the Rural Policy Area, particularly in the Limestone Overlay District.</p>	<p>County Government</p>
<p><b>4.6.A.</b> Implement water and wastewater treatment and disposal standards for alternative systems that protect water quality.</p>	<p>County Government</p>
<p><b>4.6.D.</b> Require Loudoun Water to own and operate all public community water and wastewater systems with more than 15 connections.</p>	<p>General Services, Loudoun Water</p>
<p><b>5.1.C.</b> Develop a hazardous waste education program and increase residential access to the safe disposal of hazardous waste to protect groundwater resources.</p>	<p>County Government</p>
<p><b>6.1.A.</b> Establish zoning regulations and design standards that permit alternative electrical generation such as wind and solar generation by and for individual users.</p>	<p>Planning &amp; Zoning</p>
<p><b>6.1.C.</b> Work with electrical providers to identify potential high voltage distribution lines and substation locations that minimize impacts on key travel corridors, sensitive cultural and historic resources, and existing residential communities or to place high voltage distribution lines underground when approaching such areas; and where possible, use existing transmission corridors and substation sites to expand capacity.</p>	<p>Planning &amp; Zoning, Building &amp; Development</p>
<p><b>7.1.A.</b> Review and update the County's <i>Strategic Land Use Plan for Telecommunication Facilities</i> to facilitate the expansion of fiber and broadband service throughout the County.</p>	<p>Planning &amp; Zoning</p>
<p><b>7.1.B.</b> Adopt zoning regulations and design standards requiring open access conduit to all development projects to facilitate future broadband extensions.</p>	<p>Planning &amp; Zoning</p>

<p><b>7.1.C.</b> Establish performance standards for wireless communication facilities to minimize the need for legislative action.</p>	<p>Planning &amp; Zoning</p>
<p><b>8.1.B.</b> Direct the majority of public investments into currently developed communities, Towns and non-residential areas of the County where development is planned according to the Comprehensive Plan and give priority to the redevelopment and enhancement of existing infrastructure, capital facilities, and services.</p>	<p>Board of Supervisors</p>
<p><b>8.1.C.</b> Where permitted, continue to seek private sector support for improvements or provision of current and future public facilities and sites, including proposals of cash and in-kind assistance for public facilities in addition to the timely provision of dedicated sites.</p>	<p>Board of Supervisors</p>
<p><b>8.1.D.</b> Seek authority from the state legislature to establish impact fees and a reasonable implementation process applicable in areas of the County where rezonings are not anticipated or where the provision of improvements and facilities through proffers associated with rezonings for new residential development is restricted by State legislation.</p>	<p>County Administration</p>
<p><b>8.2.C.</b> Develop demographic, economic, and financial data that are used as inputs to demographic forecasts and for fiscal impact modeling.</p>	<p>Management &amp; Budget, Planning &amp; Zoning</p>
<p><b>8.2.D.</b> Develop and regularly update the CIF – the dollar amount of the capital facilities impact measured by unit type or unit characteristics and geographic location that is calculated using County CFS and demographic inputs. The County uses the CIF to assess the capital facilities impacts of new residential development and provide a guideline to evaluate and consider residential rezoning applications and proposed proffers.</p>	<p>Management &amp; Budget, Planning &amp; Zoning</p>
<p><b>8.2.G.</b> Where permitted, seek to ensure that an equitable and proportionate share of public capital facility and infrastructure development costs that are directly attributable to a particular development project will be financed by the users or beneficiaries.</p>	<p>Board of Supervisors, Planning Commission, Planning &amp; Zoning</p>
<p><b>8.2.H.</b> Evaluate, consistent with the Virginia Code Sec. 15.2-2283 and 15.2-2284 and other applicable law, the adequacy of existing and planned public facilities and services when assessing impacts of any legislative application for more intensive use or density. <i>(See Chapter 6 for more information)</i></p>	<p>Board of Supervisors, Planning Commission, Planning &amp; Zoning</p>
<p><b>8.3.A.</b> Consider proposals of the timely dedication of land, cash, and in-kind assistance from a landowner through proffered conditions submitted in accord with Virginia Code Sections 15.2-2303 and 15.2-2297, as applicable, in the provision of public facilities identified in the CIP or CNA. <i>(See Chapter 6 for more information)</i></p>	<p>Board of Supervisors, Planning Commission, Planning &amp; Zoning</p>
<p><b>8.3.B.</b> Ensure that an equitable and a proportionate share of public capital facility and infrastructure development costs that are directly attributable to a particular development project are financed by the users or beneficiaries.</p>	<p>Board of Supervisors, Office of the County Attorney, Planning Commission, Planning &amp; Zoning</p>

<p><b>8.3.C.</b> Apply all of the proffer policies and actions and guidelines set forth in this document subject to and in compliance with the limitations established by Virginia Code Section 15.2-2303.4 as applicable. In its consideration and acceptance of all proffers, the County will apply the standards of Virginia Code Sections 15.2-2297, 15.2-2303, and 15.2-2303.4, as applicable, to evaluate the reasonableness of proffered conditions.</p>	<p>Board of Supervisors, Office of the County Attorney, Planning Commission, Planning &amp; Zoning</p>
<p><b>8.3.F.</b> To assist the County in an equitable and uniform evaluation of developer proffers and other proposals, for proposed densities above the specified base density for each planning policy area, which otherwise conform with the policies of this Plan, the County anticipates developer assistance valued at 100 percent of capital facility costs associated with such increased densities.</p>	<p>Planning &amp; Zoning</p>
<p><b>8.3.I.</b> Consider developing capital standards for roads to incorporate into the CIF or providing credit against the anticipated capital facilities proffers for transportation proffers that exceed the anticipated transportation impact mitigation of the proposed development.</p>	<p>Management &amp; Budget</p>
<p><b>8.3.J.</b> Establish the boundaries for Small Area Plans, authorized under Code of Virginia Section 15.2-2303.4, encompassing the Urban Policy Area, Suburban Policy Area, Transition Policy Area, and Leesburg JLMA, and the three Silver Line Metrorail Stations within the County. The planned land use within these Small Area Plan boundaries will reflect the land uses developed in the <i>Loudoun County 2019 Comprehensive Plan</i> for each policy area until such time as the Board adopts more detailed plans.</p>	<p>Planning &amp; Zoning</p>

## Chapter 7

### Implementation Strategy

Action	Responsibility (Loudoun County Department or Agency)
<p>Staff is to provide for regular updates on the various elements of the <i>Loudoun County 2019 Comprehensive Plan</i>- which will allow the Board to direct a comprehensive review of the Plan at least every five years to ensure that the Plan is kept current. The order and sequence of the review of the chapters and policy area sections of the <i>Loudoun County 2019 General Plan</i> will be determined by the Board of Supervisors. Focus areas can be identified and prioritized by the Board annually during its strategic planning sessions.</p>	<p>Planning &amp; Zoning, County Government</p>
<p>Conduct a comprehensive review of the County Zoning Ordinance and prepare a Zoning Ordinance consistent with the Plan's policies, strategies, and actions.</p>	<p>Planning &amp; Zoning</p>
<p>Reconvene the Fiscal Impact Committee to evaluate standards relative to the new place type service demands and specifically address the demand for public infrastructure in the Urban Policy Area.</p>	<p>County Government</p>



<p>Update the Land Subdivision and Development Ordinance and Facility Standards Manual to align with the policies, strategies, and actions of this Plan.</p>	<p>County Government</p>
<p>Develop a strategy to facilitate the development of high-speed wired and wireless telecommunication networks, including broadband technology, in the RPA.</p>	
<p>Deployment of implementation strategies set forth in the <i>Loudoun County 2019 Countywide Transportation Plan</i>.</p>	<p>Planning &amp; Zoning, Transportation &amp; Capital Infrastructure</p>
<p><b>Initial Board-Directed Amendments to the Zoning Ordinance</b></p>	
<p><b>Action</b></p>	<p><b>Responsibility (Loudoun County Department or Agency)</b></p>
<p>Provide a resolution of intent to amend the Zoning Ordinance to the Board to consider replacing the existing noise contours for Washington Dulles International Airport and consider adopting the noise contours in the 2019 Washington Dulles International Noise Contour Map Update. <b>[Implemented with CPAM-2021-0001, ZMAP-2021-0011, and ZOAM-2021-0002, Airport Impact Overlay District Update]</b></p>	
<p>Develop performance standards for data centers to address design, landscaping, and compatibility that could eliminate the need for a special exception.</p>	<p>County Government, Planning &amp; Zoning</p>
<p>Consider reducing the maximum allowable accessory dwelling unit square footage to the lesser of 1,200 square feet or 70 percent of the principle structure gross square footage and ground floor footprint for applicable zoning districts in the Suburban Policy Area, subject to performance standards.</p>	<p>County Government, Planning &amp; Zoning</p>
<p>Develop performance standards to address design, landscaping, and compatibility for industrial uses in the Suburban Industrial and Mineral Extraction adjacent to residences and primary roads.</p>	<p>County Government, Planning &amp; Zoning</p>

# Glossary

## A

***Accessory Residential Unit:*** A secondary house or apartment that shares the building lot of a larger, principal residential structure.

***Active Adult Retirement Communities:*** Primarily residential communities offering housing types and neighborhoods tailored to the specific interests and desires of older adults. These communities offer an independent living environment with houses often designed to reduce maintenance requirements and cater to specific interests of the older adult home buying market. Restricted to adults above a certain age, these communities offer amenities and services tailored to this age group and cater to older adults seeking a living environment among others who share similar interests. Active adult dwelling units may also be found in age-targeted communities where they commingle with traditional family housing.

***Adaptive Reuse:*** The repurposing of an existing structure in order to accommodate new uses while preserving the structure. This often involves improving existing buildings to allow for modern design and building program preferences.

***Adverse Effect:*** Any negative consequence resulting from a change in the type or intensity of land use, which may include one or more of the following:

- impairment of the quality of natural, environmental, and heritage resources;
- injury or damage to property or to plant or animal life;
- harm or material discomfort to any person;
- impairment of the safety of any person;
- rendering any property or plant or animal life unfit for use by man;
- loss of enjoyment of normal use of property; or
- interference with the normal conduct of business.

***Affordability Gap:*** The difference between the cost of housing and the amount households can afford to pay.

***Affordable:*** When not used in the context of specific programs and policies (e.g., Affordable Dwelling Unit), a general descriptor for housing requiring no more than 30 percent of a household's income.

***Affordable Dwelling Unit (ADU):*** A dwelling unit for rent or for sale that is locally restricted for occupancy by households whose income falls between 30 and 70 percent of the Area Median Income (AMI). Typically ADUs are offered at a below-market rate.

***Agriculture:*** Any land use that produces livestock or plant materials to be used for food or fiber for human or animal consumption. Examples include activities that produce cattle,

sheep, hogs, horses or other livestock; activities that produce grains such as wheat, barley and corn; fruit and vegetable production and tree or timber production.

***Agricultural Soils:*** Productive soils that include both Prime Agricultural Soils (Class I) and Secondary Cropland (Class II) that are essential for growing plants and crops, raising livestock, and supporting ecosystems.

***Agricultural Supportive Business:*** Uses that provide either direct or indirect services to agricultural, silvicultural, horticultural, equine, and/or animal husbandry activities. These uses include farm machinery sales, rental, and repair services; veterinary services; blacksmithing; agricultural product storage and processing; feed and seed supply; and similar uses.

***Agricultural and Forestal District:*** Districts that landowners voluntarily enter into, subject to Board of Supervisors approval, that limit the use and development of property for a specified term to protect agricultural and forest lands.

***Agritourism:*** A commercial enterprise that links agricultural production and/or processing with tourism in order to attract visitors to a farm, ranch, or other agricultural business for the purposes of entertaining and/or educating the visitors and generating income for the farm, ranch, or business owner.

***Airport Noise Impact Area:*** Areas that have been determined to be impacted by noise caused by airport operations (i.e., aircraft noise impact areas), as depicted on the Airport Noise Impact Area map (see Chapter 3 for the ANIA map and relevant policy guidance).

***Apartment/Residential Condo:*** A building, or portion thereof, designed for occupancy by three or more households living independently of each other. (See also, ***Multifamily Residential***)

***Aquifer:*** A geologic formation or structure that transmits underground water in sufficient quantity to supply pumping wells or springs.

***Archaeological Site:*** The physical remains of any area of human activity greater than fifty years of age for which a boundary can be established, including but not limited to domestic/habitation sites, industrial sites, burial sites, earthworks, mounds, quarries, canals and roads.

***Archaeological Survey:*** The scientific archaeological investigation of a known or potential archaeological resource as defined by the Virginia Department of Historic Resources' Guidelines for Archaeological Investigations in Virginia. See also, ***Historic Resources Survey***.

***Area Median Income (AMI):*** The middle household income in a specific metropolitan area; half of households of a particular size have incomes higher and half have incomes lower. AMI is used to determine eligibility for housing programs.

**Arterial Road:** Generally, a publicly owned and maintained road, designed with restricted access and primarily intended to carry through traffic at 45 to 55 miles per hour.

## B

**Bedrock:** Rock formation that underlies surface materials such as soil.

**Best Management Practices (BMP):** Structural, operational, or procedural practices that are generally accepted as the most effective and practical means for reducing the amount of non-point source (NPS) water pollution to a level compatible with established water quality goals.

**Buffer:** An undeveloped or relatively undeveloped land area that lies between two land uses and is intended to screen the view, limit noise exposure, or otherwise mitigate the impacts of one use on another. A buffer may include trees, plants, or structural measures to further shield one use from the other.

**Built Environment:** Human-made surroundings that provide the setting in which people live, work, learn, and play on a day-to-day basis, and how they are interrelated as a complete and connected system in relationship to human activity. The built environment includes uses such as buildings and structures, parks, utilities and communication infrastructure, roads, paths, transportation infrastructure, streetscapes, signage, man-made landscapes, and open space.

**By-Right Uses:** Uses or structures that are allowed under the regulations of a particular zoning district classification without the need for legislative approval by the Board of Supervisors.

## C

**Canopy:** The upper branches of a stand of trees; the tallest trees in a forested area.

**Capital Facility Proffer:** An in-cash or in-kind (land or improvement) contribution, consistent with County policies and service needs, that is intended to mitigate the capital facility impacts of a development and is voluntarily agreed to by a property owner as a condition of a rezoning.

**Capital Facility Standards:** Standards developed to guide the development of new capital facilities such as schools, parks, libraries, roads, and other public facilities. They include the types and quantities of capital facilities needed, the typical square footage of each type of facility, the amount of acreage required (for building, parking, utilities, etc.), and the demographic or geographic factors by which a new facility is warranted.

**Capital Improvement Program (CIP):** The County's annual plan for future capital project expenditures. This plan spells out the funding for capital facilities, including schools, libraries, and parks, that the County plans to finance over a six-year period.

**Capital Intensity Factor (CIF):** The dollar amount of the capital facilities impact, measured by unit type or unit characteristics and according to a development project's geographic location, which is calculated using the County's capital facility standards and demographic inputs.

**Capital Needs Assessment (CNA):** Assessment that identifies the type and number of capital facilities that will be needed to serve the public over a ten-year planning period and maintain the County's desired levels of services.

**Central System:** The water and/or sewer (wastewater) utility network serving Loudoun Water's eastern service area, as shown in the Water/Sewer Service Area Map.

**Champion Tree:** Any tree deemed largest of its species and listed on either the Virginia Big Tree Registry (maintained jointly by the Virginia Forestry Association, Virginia Department of Forestry, and Virginia Tech College of Natural Resources) or the National Register of Big Trees (maintained by American Forests). A champion tree may be a National Champion, a State Champion, or both.

**Civic Uses:** Public or quasi-public uses in residential or business areas that are accessible to the public and primarily serve as gathering or meeting areas for the immediate community. Civic uses may be public buildings; defined space in residential, commercial, or mixed-use buildings; or outdoor space constructed to accommodate gatherings of the community. They can be the settings where celebrations are held, where social and economic exchanges take place, where friends run into each other, and where cultures mix. Such uses typically include churches, schools, libraries, community centers, amphitheaters, and property owner association meeting space or club houses. See also, *Community Uses* and *Cultural Uses*.

**Cluster Development:** A residential development pattern that features the grouping of units on smaller lots with the intention of retaining a significant area of the site as open space or farmland. See also, *Clustered Residential Subdivision*.

**Clustered Residential Subdivision:** A development or subdivision option permitted in certain zoning districts that features the grouping of building units on smaller lots within a portion or portions of the site, with the intention of retaining a significant area of the land as a contiguous tract of unbuilt open land. Clustering is both visual and spatial, with the dwellings scaled and sited to maintain coherent relationships to each other and the surrounding landscape. The open space may serve to preserve environmentally sensitive areas while catering to active or passive recreational, agricultural, forestal, or rural economy uses.

**Collector Road:** A road into which local roads funnel and that, in turn, carries traffic to an arterial road. Ideally a collector road would have few private entrances accessing it directly.

**Commercial Core:** An identifiable center or focal point of a community. Typically a commercial area that may include parks, public facilities, or civic uses and is located to enable convenient access to most of the community.

**Commercial Use:** Any wholesale, retail, or service business activity established to carry on trade for profit.

**Community System:** A shared water supply and/or sewer (wastewater) system operated and/or owned by Loudoun Water or a private entity as defined by Chapter 10.1 or 10.2 of Title 56 of the Code of Virginia that is designed to serve small scale development, including cluster developments, where permitted by the Zoning Ordinance. See also, *Shared Water and Sewer System*.

**Community Plans:** Specific, detailed land use plans that Loudoun County adopts for various areas of the County.

**Community Uses:** Gathering places for the surrounding community or general public, such as plazas, playgrounds, pocket parks, gardens, public art, and amphitheaters. See also, *Civic Uses* and *Open Space*.

**Compatible:** Describes an existing or committed land use or activity that can coexist with a neighboring use/activity or uses/activities, without generating one or more off-site *Adverse Effects*.

**Comprehensive Plan:** The general plan for the County and its supporting components, including the Countywide Transportation Plan. Every County in Virginia must have a Comprehensive Plan, which spells out policies for future development in order to ensure orderly growth and the protection of the public health and welfare. The Comprehensive Plan may consist of a number of components, such as community plans, strategic plans, service plans, and specific land use related resolutions of the Board of Supervisors.

**Conference Center:** A large building that is designed to hold conventions, conferences, or other large events where individuals and groups gather to promote and share common interests.

**Conservation Design:** A land development approach that conserves the environmental, natural, and heritage elements of a site while providing for development at full density on the remainder of the site.

**Conservation Easement:** A voluntary legal agreement between a property owner and a land trust or government agency that places permanent restrictions on a property, which may relinquish certain development rights and/or require the preservation of farmland, and/or natural, environmental, and heritage resources on a property in perpetuity. The easement is recorded in the land records and the property owner retains ownership of the property and all rights and privileges for its use, except for the uses restricted under the easement.

**Contiguous:** Touching, abutting, and/or adjoining at the border, or immediately across the street.

**Continuum of Housing:** A variety of housing types, sizes, and prices, —both for rental and homeownership —that meets the needs of Loudoun's current and future citizens.

County resources will be focused on unmet housing needs of households with incomes up to 100% AMI.

***Contractor Services:*** A business establishment specializing in the installation and servicing of such items as air conditioners, electrical equipment, flooring, heating, painting, plumbing, roofing, tiling, and ventilation; the planting and maintenance of gardens, grounds and yards, such as landscape contractors and lawn maintenance services; and construction and demolition services.

***Contractor with Outdoor Storage:*** A contractor services use that includes outdoor storage of materials, goods, and/or vehicles related to the service.

***Contractor without Outdoor Storage:*** A contractor services use that does not include outdoor storage of materials, goods, and/or vehicles related to the service.

***Cost-burdened Household:*** A household that spends 30 percent or more of their income on housing (gross rent or mortgage).

***Cultural Landscape:*** 1. “The combined works of nature and of man [that] are illustrative of the evolution of human society and settlement over time, under the influence of physical constraints and/or opportunities presented by their natural environment and of successive social, economic, and cultural forces, both external and internal” (UNESCO/ICOMOS Expert Group, World Heritage Convention Operation Guidelines, February 1995) or 2. “A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values” (National Park Service).

***Cultural Uses:*** Uses that provide access to or interpretation of the history, customs, arts and social interactions of a particular nation, people, or other social group. May include such uses as monuments, museums and art galleries, visual and performing arts venues, historical sites, or cultural landscapes. See also, ***Civic Uses***.

## D

***Data Centers:*** A facility composed of a large group of networked computer servers, typically used by organizations for the remote storage, processing, or transmission of large amounts of digital data.

***Density:*** The amount of development permitted per acre of land. It may be expressed in terms of dwelling units per acre or as a percentage or portion of building ***floor area ratio (FAR)***.

***Department of Transportation and Capital Infrastructure (DTCI):*** County department that oversees roadway planning, local transportation projects and transit functions, as well as capital planning, funding, design and construction management.

***Design Guideline:*** A set of recommendations towards good practice in design.

***Design Standard:*** A set of rules to implement design items with generally accepted and uniform procedures, dimensions, or materials, which may be administered through a regulatory process.

***Development:*** The act of building, or the existence of, structures for human habitation, business uses, or other human activity, including houses, stores, schools, offices and roads.

***Diabase:*** A fine- to medium-grained dark-colored igneous rock, which is a good source for crushed stone for road and building construction.

***Dillon Rule:*** The rule adopted by the Virginia General Assembly that limits the legislative powers of local government in Virginia to those powers that have been specifically and expressly granted to them by the General Assembly.

***District Energy Systems:*** Networks of hot and cold water pipes, typically buried underground, that are used to efficiently heat and cool buildings using less energy than if the individual buildings were to each have their own boilers, chillers, or cooling towers.

***Drainfield:*** Soil absorption trench fed by underground pipes for dispersion of the liquid portion of sewage from a *septic system*.

***Duplex:*** A residential building that has separate but complete facilities to accommodate two households, either as adjacent or stacked units. See also, *Single-Family Attached Residential*.

## E

***Easement:*** An interest in land owned by another that entitles its holder to a specific and limited use.

***Easement, Open Space (Scenic, Conservation):*** An easement that removes or limits the right to develop land. “Eased” is used as an adjective applied to land with such open space restrictions.

***Eco-districts:*** A neighborhood committed to sustainability with empowered people, green buildings, and smart infrastructure. The establishment of eco-districts is a comprehensive strategy to accelerate sustainable development at the neighborhood scale by integrating building and infrastructure projects with community and individual action. Can be used as part of a public/private partnership.

***Economic Development:*** Efforts that seek to improve the economic well-being and quality of life for a community by creating and/or retaining jobs and supporting or growing incomes and expanding the tax base.

***Ecosystem:*** A complex network of biological communities and their interaction with their physical environment.



**Enabling Legislation:** Legislation passed by the Virginia General Assembly that authorizes a locality to carry out some particular program or that grants certain specific powers to those localities. Local governments may not enact ordinances without enabling legislation. See also, *Dillon Rule*.

**Entertainment Commercial:** Commercial uses that are devoted to entertainment including cinema, television, radio, games, theatre, and music.

**Equine Facilities:** Facilities for the purposes of accommodating, training, or competing equids, especially horses, to include barns, stables, or riding halls and may include commercial operations such as boarding stables, livery yards, or livery stables. Larger facilities may include complementary services such as riding schools, farriers, veterinarians, tack shops, or equipment repair.

**Erosion:** The wearing away and removal of soil or rock by natural means such as wind or water.

**Exemplary Natural Communities:** The most outstanding and viable occurrences of common natural community types, based on size, condition, and landscape context and all examples of rare natural community types, as defined by the Virginia Department of Conservation and Recreation, Division of Natural Heritage.

**Extremely Low-Income Household:** A household with an annual income at or below 30 percent of the Area Median Income (AMI).

## F

**Facilities Standards Manual:** An adopted document that sets out design and construction standards for site development improvements implemented through subdivisions and site plans, to include infrastructure required for water/sewer service access (e.g. roads and streets), and environmental design (e.g. soils and geotechnical review, tree planting and conservation, erosion and sediment control).

**Fiscal:** Of or relating to public revenues, public expenditures, public debt, and public financial matters.

**Fleet and Equipment Sales and Service:** Any sales, leasing, parts, and service operation that specializes in new and used truck and trailer equipment.

**Flex Space:** A category of building that generally includes a compatible mix of warehouses, light manufacturing, and related accessory uses. These facilities are typically used for product production and service and the storage and distribution of goods.

**Floodplain:** A low, usually flat terrain on either side of a river or stream that is normally dry but submerged at times of high water, and where accumulations of silt and sand are deposited away from the main channel.

***Floodplain, Major:*** The floodplain created by flooding from a stream that drains greater than 640 acres.

***Floodplain, Minor:*** The floodplain created by flooding from a stream that drains less than 640 acres but greater than 100 acres.

***Floor Area Ratio (FAR):*** The enclosed gross floor area of buildings on a given lot divided by the total area of the lot. See also, ***Density***.

***Forest:*** A plant community predominantly consisting of trees and other woody vegetation of at least 10 acres in which 50 percent of the tree canopy coverage exceeds 25 feet in height and one that currently has or will result in 85 percent crown closure within ten years. A forest is further defined as forming an ecosystem that provides food, water, and shelter for various plant and wildlife habitats.

## G

***General and Heavy Manufacturing and Assembly:*** Industrial uses involving the manufacture and/or assembly of goods or materials on a large scale.

***Greenbelt:*** Any largely undeveloped area or an area of low-density development consisting of entirely or primarily heavily vegetated open space surrounding a developed area or separating one area from another to create a visual separation.

***Greenfield Development:*** Development that occurs on undeveloped land.

***Greyfield Development:*** Development on real estate that has been previously developed and used but has become obsolescent or substantially underutilized. Examples of greyfield sites may include abandoned commercial, industrial, or public properties or underutilized older commercial centers that no longer attract investment.

***Groundwater:*** The supply of freshwater beneath the ground surface in a saturated zone that forms a natural reservoir for potable water. Groundwater is a major source of water supply for western Loudoun County.

***Groundwater Recharge:*** Undeveloped or sparsely developed area where groundwater can be replenished by rainfall.

***Growth Boundary:*** The limit of central water and sewer (wastewater) utility service marking the separation of distinctly different land uses and densities.

***Growth Management:*** The process of guiding development in the direction that is most efficient, and fiscally and environmentally sound.

## H

**Habitat:** The place or environment where animals or plants naturally or normally live and grow.

**Heritage Resource:** Those resources, both human and natural, created by activities from the past that remain to inform present and future societies of the past.

**Heritage Trees:** Any tree that has been individually recognized by the local governing body for its association with a historic event, person, structure, or landscape. The historic significance may be at the local, state, regional, or national level.

**Historic District (County Designated):** A zoning district overlaid on an existing zoning district that applies additional architectural and design controls to the regulations of the base district. A Historic Site District (HS) comprises a single historic property and its related structures, while a Historic and Cultural Conservation District (HCC) comprises a multiple properties related in some way to each other.

**Historic District Review Committee (HDRC):** A committee of citizens appointed by the Board of Supervisors and empowered to approve or deny the issuance of Certificates of Appropriateness for any construction, reconstruction, renovation or restoration activity in a County-designated Historic District.

**Historic Landmarks:** A site designated by national, state, or local officials as a historic landmark. The term is primarily used to refer to National Historic Landmarks.

**Historic Property:** Building, site, district, object, or structure evaluated as historically significant inclusive of their historic setting.

**Historic Resources Survey:** A survey locating and identifying properties within a specific geographic area and documenting them to an established standard as defined by the Virginia Department of Historic Resources' Guidelines for Conducting Historic Resources Survey in Virginia. The survey involves collecting and organizing data from field investigations and gathering data from historical research, interviews, and planning studies. See also, *Archaeological Survey*.

**Historic Site:** An architectural, engineering or archaeological area, structure, object, or landscape that has historic significance to the region, locality, community, or nation.

**Homeowners Association (HOA)/Property Owners Association (POA):** A private association consisting of homeowners or property owners organized for the purpose of overseeing the enforcement of covenants or deed restrictions that apply to a group of homes, lots, or buildings. Covenants and deed restrictions may govern such things as the maintenance and use of homes, buildings, private streets, and common areas, such as pools, playgrounds, landscaping, and parking lots.

**Hotel:** An establishment providing accommodations, meals, and other services for travelers and tourists.

**Hotel, Full Service:** Mid-priced, upscale, and/or luxury hotel providing restaurant, lounge facilities, exercise facilities, meeting space, room service, and bell service.

↓

**Impermeable or Impervious:** Describes any material or surface that prevents the absorption of water into the ground.

**Indigenous Vegetation:** Existing plant communities or species that occur naturally to a specified region or area, and that are descendants of plants that existed prior to the land being developed or cultivated. Also referred to as native vegetation.

**Industrial Uses:** Nonresidential and noncommercial employment uses such as warehousing, mining, milling, and manufacturing. Industrial uses are characterized by varying degrees of outside storage or activity, types of equipment use, and potential compatibility issues with surrounding uses.

**Infill Development:** Establishment of a new use on a site that may be undeveloped or underutilized but is located in an area of established, stable development where roads, water, sewer, and general services are available or planned. Infill sites are often small (less than 25 acres), and their development should complement or complete a larger development area.

**Infrastructure:** Utilities such as water/sewer, electrical, gas, communication, internet and transportation, which provide services and support necessary to the function of the built environment.

**Institutional Uses:** Land uses developed to help serve a community's social, educational, health, cultural, and recreational needs, including government offices and facilities; public or private health facilities; recreational uses; educational uses such as schools, training centers, and universities; libraries; camps; or similar facilities.

**Intensity:** Physical measures of the scope and scale of land use, including building height, bulk, and coverage. The most common measurement of intensity is **Floor Area Ratio (FAR)**. See also, **Density**.

**Interim Use:** Land use that does not require substantial infrastructure and construction investment and that by design or investment can be expected to be removed and the site redeveloped based on future market trends or can easily be adapted and augmented with future land uses. Examples may include community gardens, playgrounds, park-and-ride lots, and farmer's markets.

**Invasive Plant Species:** Any plant species that is not native to the region and causes or is likely to cause economic, health-related, or environmental harm.

J-L

***Joint Land Management Area (JLMA):*** The County area surrounding an incorporated town intended to accommodate future town growth.

***Karst:*** Refers to terrain characterized by the solution of bedrock that allows underground drainage and generates distinctive land forms and features such as sinkholes, pinnacled rock, and caves. Much of the County's limestone geology area is considered karst.

***Land Trust:*** A public and/or private organization with the authority to buy, accept donations, hold, and/or sell interests in real property for the purpose of land and/or building preservation.

***Large Lot Residential:*** Single-family detached homes built on large lots that provide low density living opportunities.

***Ldn:*** Day-Night Average Sound Level. The energy-average level of sound, in decibels, for 24 hours adjusted to include a 10 decibel penalty for noise exposures during night-time hours (10:00 pm to 6:00 am).

***Leadership in Energy and Environmental Design (LEED):*** A green building certification program developed by the U.S. Green Building Council that includes a set of rating systems for the design, construction, operation, and maintenance of green buildings, homes and neighborhoods aimed at being environmentally responsible and using resources efficiently.

***Light Pollution:*** Unnatural brightening of the night sky caused by street lights and other man-made sources, which has a disruptive effect on natural cycles and inhibits the observation of stars and planets.

***Light Production:*** Production uses that are likely to result in fewer adverse impacts on their surroundings than heavy industries. Often located in industrial parks, flex space, or in conjunction with large mixed-use development; such uses may include manufacture and distribution of scientific products and/or precision instruments. In mixed-use communities, outdoor storage will not be permitted, and buildings should be designed and scaled compatibly with non-industrial uses.

***Limestone Geology:*** Geologic formation that is highly water soluble and is characterized by numerous underground caves and surface sink holes; it is a natural groundwater aquifer and good water supply source. Limestone geology consists of various small rocks cemented together with a carbonate matrix. In appearance, it is very similar to concrete. See also, ***Karst.***

***Live/Work Units:*** A single unit consisting of both a commercial/office and residential component, often occupied by the same tenant (e.g. studio, loft or one bedroom).

***Local Road:*** A public, state-owned, and state-maintained road designed for direct access to individual lots.

***Low Impact Development (LID):*** Land planning and engineering design approach to manage stormwater through sustainable systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration, or use of stormwater in order to protect water quality and associated aquatic habitat.

***Low-Income Household:*** A household with an annual income between 50 and 80 percent of the Area Median Income (AMI).

## M

***Medical Center:*** An aggregation of health care facilities whose day-to-day operation is supplemented by the close proximity or collocation of other health care facilities or healthcare-related businesses.

***Metrorail Service Districts:*** Tax districts adopted by the Board of Supervisors intended to help fund construction costs associated with Metrorail operations; also known as *Metrorail tax districts*.

***Micro-Grid Energy Systems:*** Stand-alone electrical systems consisting of multiple generating sources and defined loads that can operate independently from the primary utility grid. They provide a reliable, efficient solution to unexpected power loss, effectively balancing spikes in energy demand, optimizing energy usage for more reliable power, reducing operating costs and carbon emissions.

***Micro Unit:*** A one-room, self-contained living space designed to accommodate a sitting space, sleeping space, bathroom, and kitchenette. Residents may have access to a communal kitchen, bathroom, patio and gardens. Units are generally 50 to 350 square feet in size.

***Millennial:*** A person reaching young adulthood in the early 21st century, born between 1981 and 1996.

***Missing Middle:*** The mix of small scale single-family units, accessory dwelling units, and limited multifamily units with a lower perceived density, intended to increase diversity and affordability of housing types in a manner sensitive to the scale and context of existing neighborhood surroundings.

***Mitigation (environmental):*** Methods used to alleviate or lessen the impact of development. Examples include planting of new forests to replace those that have been removed; creation of new wetlands to replace those destroyed by development. Mitigation is sometimes done in a different area than that previously occupied by the replaced forest, wetland, etc., but this practice is not encouraged.

***Moderate-Income Household:*** A household with an annual income between 80 and 100 percent of the Area Median Income (AMI).

***Moderately Steep Slopes:*** Surface formation with a vertical incline of 15 percent to 25 percent, a sufficient steepness to cause problems such as erosion or increased flooding when land is disturbed. See also ***Steep Slopes***.

***Months of Supply:*** A measure of how many months would be needed to sell all of the existing home sales inventory available at the current rate of demand, calculated by dividing current inventory by current sales. This is an indicator for supply in the home sales market.

***Mountainside Areas:*** Areas associated with the County’s mountain features, categorized based on weighted criteria as defined in the Loudoun County Interpretive Guide to the Use of Soils Maps, and defined by the following:

- Elevation: Above 700 feet mean sea level for the Short Hill and Blue Ridge Mountains and 550 feet for the Catoctin, Hogback, and Bull Run Mountains;
- Soils: Associated with mountainsides that affect groundwater recharge, slippage potential, and suitability for onsite sewage disposal systems;
- Slopes: Moderately steep slopes (15 to 25 percent) and steep slopes (greater than 25 percent); and
- Forests: The quality and extent of tree cover, woodlands, and forests.

***Multifamily Residential:*** A classification of housing where separate housing units are contained within one building or several buildings within one complex. See also, ***Apartment/Residential Condo***.

***Municipal System:*** Water and/or sewer (wastewater) utility network owned or operated by an incorporated Town.

## N

***National Register of Historic Places:*** The official Federal list of districts, sites, buildings, structures, landscapes, and objects significant in American history, architecture, archaeology, engineering and/or culture. These places contribute to an understanding of the historical and cultural foundations of the United States.

***Natural Heritage Resources:*** Those resources that include rare, threatened, and/or endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and other natural features of the County.

***Noise-Sensitive Use:*** A use for which quiet is integral to its function and/or the safety of residents, customers, and other users, including housing, hotels, nursing homes, schools, churches, hospitals, day care centers, libraries, and other similar uses.

***Non-Point Source (NPS) Water Pollution:*** Diffuse water pollution that results when stormwater and other land runoff picks up pollutants and deposits them into a stream or other water body. NPS pollution cannot be traced to a specific source and/or point of entry.

O

**Office:** Uses such as administrative, professional, bureaucratic, or clerical services. Examples include but are not limited to law practices, accounting firms, clinics, real estate services, and other similar businesses.

**Old Growth Forest:** Also referred to as Ancient Forest. A forest that is ecologically mature and has been subject to negligible disturbance. Ecological maturity is typically defined when tree species reach the later stages of their life cycle, reflecting in significant amounts of the upper stratum or overstory in the mature (old) growth phases.

**100-foot Minimum Stream Buffer:** Minimum stream buffer providing a minimum filtration area to ensure the maintenance of water quality and the integrity of the river and stream corridor. The buffer is measured from the ordinary high water mark landward on both sides of the stream when the 100-year floodplain and adjacent steep slopes do not extend beyond either bank by 100 feet.

**On-Site or Individual Water and Wastewater Systems:** A system that serves a single user; commonly well and septic systems.

**Open Space:** Any essentially unimproved parcel or area of land or water that is designated for public or private use or enjoyment. See also, *Community Uses*. There are three types of open space defined in this plan, as follows:

**Open Space, Active Recreation:** Areas dedicated to leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed sites or fields. Examples include ballfields, tennis or basketball courts, swimming pools, tot lots, golf courses, dog parks, and other areas for recreational sports and games. See also, *Recreation, Active*

**Open Space, Natural:** Land left in a mostly undeveloped state. Examples include forests, meadows, hedgerows, and wetlands.

**Open Space, Passive Recreation:** Areas for activities that involve less energetic activities such as walking, sitting, picnicking, card games or table games. Examples include trails (hiking, biking, walking, or equestrian), picnic, community gardens, camping, hunting, or fishing areas. Passive recreation uses have fewer potential impacts on the site and on surrounding land uses. See also, *Recreation, Passive*

**Open Space Preservation Program:** A program that seeks to balance the loss of open space to new development with the provision of easements or funds towards the purchase of publicly accessible and useable open space, to the extent permitted by Code of Virginia Section 15.2-2303.4.

**Outdoor Manufacturing:** Manufacturing in an outside area that is not enclosed or covered in any way that would obstruct the natural air flow.



***Outdoor Storage:*** The outside storage of goods, material, vehicles, mechanical equipment, and any other equipment associated with the principal use of a building.

***Overlay Zoning District:*** A zoning district superimposed on another, often used to apply additional standards for the purpose of protecting particular natural or cultural features or avoiding or mitigating potential adverse effects.

P

***Parks and Recreation:*** Resources and services provided for the purposes of leisure, entertainment, and recreational pursuits. Such resources and services are non-commercial public spaces and facilities like parks, nature preserves, open space areas, greenways, trails, and built structures for sport, recreation, or arts programs.

***Performance Standards:*** A set of regulatory criteria or limits relating to certain characteristics that a particular use or process may not exceed.

***Permeable:*** Describes materials that permit water to enter the ground by virtue of their porous nature or by large spaces in the material. See also, ***Pervious***.

***Perpetuity:*** A state of something that is continuing or enduring forever. In planning, a limitation on property that is not destructible by the persons who hold an interest in the property, is said to be held in perpetuity.

***Pervious:*** Describes materials that permit water to enter the ground by virtue of their porous nature or by large spaces in the material. See also, ***Permeable***.

***Physiographic:*** Pertaining to physical geography.

***Planning Commission:*** The body of citizens appointed by the Board of Supervisors and empowered to prepare the Comprehensive Plan and to provide guidance on proposed land use changes for conformance with the Comprehensive Plan and other applicable land development policies and regulations. Every locality in the Commonwealth of Virginia is required to create a local planning commission in accordance with Section 15.2-2210 of the Code of Virginia.

***Pollution Management Program:*** Program to help prevent water quality degradation and restore the health of lakes, rivers, streams and estuaries by promoting and funding measures to reduce and prevent nonpoint source pollution. Such programs may include watershed planning efforts, stream and wetland restoration and protection, and education and outreach.

***Prime Farmland*** (as defined by the U.S. Department of Agriculture): Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It can be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas.

**Proffer:** A voluntary commitment from a landowner or developer to mitigate or eliminate the impact of new development on neighboring properties and the County. Such commitments may include the construction of certain improvements, contributions intended to mitigate development impacts, or assurances to develop property subject to specified conditions. See also, *Capital Facility Proffer*.

**Property Assessed Clean Energy Program (PACE):** A mechanism for financing energy efficiency and renewable energy improvements on private property created by the U.S. Department of Energy. PACE programs allow a property owner to finance the up-front cost of energy or other eligible improvements on a property and then pay the costs back over time through a voluntary assessment. The unique characteristic of PACE assessments is that the assessment is attached to the property rather than an individual.

**Public Facilities:** Public works supplied, owned, managed, and/or maintained generally by a government organization or public authority. Examples include public roads, schools, water and sewer facilities, community centers, fire and rescue stations, public parks and recreation facilities, and libraries.

**Public Utilities (public water and sewer):** A central or municipal water supply and/or sewer (wastewater) system.

**Pump-and-Haul:** A sewage disposal method in which a sewage holding tank is pumped out on a regular basis and the raw sewage is transported by vehicle to an authorized treatment plant.

**Purchasing Power:** An estimate of the amount of money a household can affordably spend to purchase a home, measured as household income multiplied by three.

## Q-R

**Quadruplex:** A residential building that has separate but complete facilities to accommodate four households as adjacent and/or stacked units. See also, *Single-Family Attached Residential*.

**Quality Development:** Unique and functional community design components that promote high quality of life, enrich areas, create distinctive visual character, and ensure a pedestrian-friendly environment.

**Quality of Life:** The standard of health, comfort, and happiness experienced by an individual or group.

**Quarry:** A place, typically a large, deep pit, from which stone or other materials are or have been extracted.

**Questionable Soil:** Where the classification, strength, or compressibility of the soil are in doubt or where a load-bearing value superior to that specified in the International Building Code is claimed.

**Real Property:** Land and any immobile buildings or structures attached to the land.

**Recreation, Active:** A type of open space featuring areas dedicated to leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed sites or fields. Examples include ballfields, tennis or basketball courts, swimming pools, tot lots, golf courses, and other areas for recreational sports and games. See also, *Open Space, Active Recreation*.

**Recreation, Passive:** A type of open space featuring areas for activities that involve less energetic activities such as walking, sitting, picnicking, card games or table games. Examples include trails (hiking, biking, walking, or equestrian), picnic, camping, hunting, or fishing areas. Passive recreation uses have fewer potential impacts on the site and on surrounding land uses. See also, *Open Space, Passive Recreation*.

**Redevelopment:** The rehabilitation, removal and replacement, or adaptive reuse of existing structures or uses. This includes any development project that significantly modifies an existing developed site resulting in changes to its design, use, and/or intensity. Projects may involve razing existing structures and constructing completely new buildings and may require mitigation or remediation of the impacts of previous uses.

**Reinvestment:** Reestablishing the economic and social vitality of an area through a combination of targeted efforts and investments that may be coordinated with redevelopment, infill, and adaptive reuse projects.

**Research and Development:** Any use related to the invention, discovery, study, experimentation, evaluation, identification, verification, design preparation, or production of products, new technologies, techniques, or processes. Research and development functions would include repair, storage, sale, and resale of materials, goods, and products relating to the research and development use.

**Retail and Service Commercial:** Uses primarily engaging in service business activity and/or the commercial retail sale, rental, or leasing of new or used products to the general public. See also, *services*.

**Rezoning:** A change in zoning district applicable to a given parcel or group of parcels of land.

**Ridgeline:** A ground line located at the highest elevation of a drainage divide for the major watersheds mapped by the County or other prominent mountain ridges visible from the public right-of-way as identified during the land development process.

**Right-to-farm Act:** A State Act that offers protection to farmers against nuisance suits. Localities are prevented from enforcing nuisance ordinances that would disrupt normal farm practices.

**Riparian:** An area of land contiguous to a stream, river, lake or wetland that contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent areas.

***Riparian Forest:*** A strip of land along a river or stream where forest and vegetation help to protect water quality, filter pollutants, regulate water temperature, enhance aquatic and wildlife habitats, and provide aesthetic value to the river or stream. Also called a riparian forest buffer when part of a larger stream buffer.

***River and Stream Corridor Resources (RSCRs):*** Certain water resources and associated land areas, specifically:

- Rivers and streams draining 100 acres or more.
- Floodplains (including major and minor).
- Adjacent steep slopes (slope 25 percent or greater, starting within 50 feet of streams and floodplains, extending no farther than 100 feet beyond the originating stream or floodplain).
- 50-foot Management Buffer surrounding the floodplains and adjacent steep slopes.
- Wetlands, forests, historic and cultural resources, and archaeological sites that fall within the area of one or more of the above elements.

***Rural Character:*** A term broadly applied to the appearance and experience associated with natural and man-made environments, comprising any combination of agricultural, forestal, environmental, scenic, historic and/or cultural elements that define a rural setting or landscape.

***Rural Economy:*** A collection of traditional and non-traditional rural business uses that are dependent on the rural land base for its agricultural productivity, scenic quality, and rural character to sustain business activities. Rural economy uses include but are not limited to agriculture; crop and livestock production; forestry; horticulture and specialty farm products; farm markets and wayside stands; the equine industry; orchards; vineyards; farm wineries; cideries and breweries; farm restaurants; hospitality services such as bed and breakfasts, country inns, banquet/event facilities, and rural resorts; and private camps and parks.

***Rural/Heritage Tourism:*** A range of attractions and activities that take place in rural/heritage areas, including the range of *agritourism* uses, equestrian events, agricultural and cultural fairs and festivals, village historic sites, farm wineries, farm breweries, and rural hospitality uses.

## S

### ***Scenic Highway/Virginia Byway:***

- ***National Scenic Byway:*** A road located within a protected corridor and having recreational, historic or scenic interest.
- ***Virginia Byway:*** A road or part of a road having high aesthetic or cultural value or leading to an area of significant historical, national or recreational interest. Designation by Virginia Department of Transportation on recommendation of

the Commission on Outdoor Recreation with approval of local Board of Supervisors. Designation does not imply any particular protection of the roadway from development or structural improvements.

***Scenic River*** : A river or section or portion of a river that has been designated by an act of the Virginia General Assembly pursuant to Section 10.1-400 of the Code of Virginia and that possesses superior natural and scenic beauty, fish and wildlife, and historic, recreational, geologic, cultural and other assets.

***Self-Sustaining Communities***: Communities planned, built, or modified to be economically, environmentally, and socially healthy and resilient.

***Septic System***: Subsurface sewage disposal system that uses the natural absorption of soil to treat wastewater. The common use is to serve one dwelling, but could be designed to serve several homes. ***Drainfield*** refers to this soil absorption trench fed by pipes from the dwelling.

***Services***: Establishments primarily engaged in providing assistance, as opposed to products, to individuals, business, industry, government, and other enterprises, including hotels and other lodging places; personal, business, repair, and amusement services; health, legal, engineering, and other professional services; educational services; membership organizations; and other miscellaneous services.

***Setback***: The distance from a property line to a structure or use such as parking, governed by the Zoning Ordinance, covenants, easements, proffers, and/or conditions at the time of legislative approval.

***Severely Cost-burdened Household***: A household that spends 50 percent or more of their income on housing (gross rent or mortgage).

***Shared Water and Sewer Systems***: Water and/or sewage (wastewater) treatment systems that are designed to serve individual users or a number of residences such as a cluster located outside the central service area of eastern Loudoun. See also, ***Community System***.

***Silviculture***: The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands.

***Single-Family Attached Residential***: A classification of housing featuring two or more attached similar dwelling units sharing common walls, ceilings, or floors and where each unit has its own external entrance. See also, ***Duplex***, ***Triplex***, ***Quadruplex***, and ***Townhouse***.

***Single-Family Detached Residential***: A classification of housing containing one dwelling unit designed for one family and located on a single lot.

***Site Plan***: A plan, to scale, showing proposed uses and structures for a parcel of land, prepared in accordance with the Zoning Ordinance and Facilities Standards Manual. It includes such information as location of lot lines, streets, buildings, parking areas, landscaping, utility lines and topographic information.

***Small Area Plan:*** Element of the Comprehensive Plan establishing areas, as authorized under Code of Virginia Section 15.2-2303.4, that are exempt from the proffer legislation provisions established by Code of Virginia Section 15.2-2303.4.

***Small Lot Single-Family Attached Residential:*** Single-family attached homes in various configurations including one-to-four residential units in buildings that resemble single-family detached homes, semi-detached units, and more conventional duplexes and townhouses with smaller floor areas to encourage density and housing diversity.

***Small Lot Single-Family Detached Residential:*** Single-family detached homes built on lots that are smaller than typically allowed in single-family zoning districts served by central or municipal utilities to encourage density and housing diversity. Such lots generally range from 5,000 to 7,000 square feet in area with corresponding lot widths of 50 to 70 feet.

***Special Activities:*** Larger scale destination uses or activities that include such uses as professional sports stadiums, conference facilities, event venues, and theme parks.

***Special Needs Population:*** A population group whose members may require specialized services or accommodations, including low income residents (incomes below the 30 percent AMI), elderly residents requiring congregate care, disabled residents, and the homeless.

***Special Taxing District:*** A geographical area wherein landowners are levied a special assessment in order to provide a desired or necessary amenity or facility mutually beneficial to the landowners of the district.

***Specimen Tree:*** Any tree that has been individually recognized by the local governing body for its special status. A tree may receive this designation by virtue of its outstanding size and quality for its particular species, especially if it represents a locally significant native species. Trees associated with the character of a community, trees that are relatively rare in an area, whether native or not, may also be awarded this status. The category also includes other locally significant trees that are significant on account of their great age or are especially renowned for their aesthetic or community value. The function of a tree in a landscape may be sufficient to justify special status such as a landmark pair of trees that frame an entrance and/or serve as natural gateways to historic sites, towns, or villages.

***Sports Arena/Training Facility:*** An enclosed area, often circular or oval-shaped, designed to showcase theatre, musical performances, or sporting events. It is composed of a large open space surrounded on most or all sides by seating for spectators, and may be covered by a roof.

***Steep Slopes:*** Surface formation with a vertical incline greater than 25 percent, a sufficient steepness to cause problems such as erosion or increased flooding when land is disturbed. See also ***Moderately Steep Slopes.***

***Stormwater Runoff:*** The portion of the total precipitation that does not sink into the soil but instead flows across the ground or other surface and eventually reaches a watercourse.

***Stream Buffer:*** A minimum area of land directly adjacent to and on either side of a river or stream. The primary purpose of the stream buffer is to provide adequate filtration of pollutants and improve water quality. Defined as part of the ***River and Stream Corridor Resources***.

***Stream Corridors:*** Alternate terminology for ***River and Stream Corridor Resources***.

***Subdivision:*** The division of a parcel of land into two or more new parcels. The process of subdividing is regulated by the Zoning Ordinance and the Land Subdivision and Development Ordinance.

***Subordinate Lot:*** A lot created pursuant to the Principal/Subordinate Subdivision Option of the Zoning Ordinance, which enables a property to be further divided into one or more smaller lots as identified in the Zoning Ordinance.

***Sustainable Site Design:*** A development approach intended to create and sustain a high quality of community values and environmental responsibility in design and construction of buildings, infrastructure, transport, and landscape. The construction methods employed should ensure that each step of the building process is focused on eliminating unnecessary site disruption (e.g., excessive grading, blasting, clearing) and resource degradation (e.g., stream siltation, groundwater contamination, air-quality loss). The strategies can harness features such as ventilating breezes, solar gain, and microclimates, and can mitigate unfavorable features such as cold, moist air drainage; desiccating winds; and increased stormwater runoff. The building process should be strategically charted in stages to avoid unnecessary site disruption, and to achieve an orderly construction sequence from site clearing to site finish. Such a strategy reduces costs and damage to the site. It requires close coordination between all sub-contractors.

## T

***Technical Assistance:*** Assistance provided by specialists in the form of sharing information and expertise, instruction, skills training, transmission of working knowledge, and consulting services and may also involve the transfer of technical data.

***Technology Zone:*** Designated areas where local jurisdictions may grant tax incentives and provide certain regulatory flexibility to encourage new and expanding technology businesses.

***Tourism Zone:*** Designated areas wherein local jurisdictions may grant tax incentives and provide certain regulatory flexibility for tourism-related development projects.

***Townhouse:*** A classification of housing where a series of three or more attached similar dwelling units are located on separately-owned lots separated by common walls and where each unit has its own external entrance. See also, ***Single-Family Attached Residential***.

***Traffic Calming:*** Measures designed to reduce the speed of motor vehicles, alter driver behavior, and improve conditions for non-motorized street users and may include both

physical (e.g., raised crosswalk, traffic circle, speed bumps) and non-physical measures (community education and enforcement).

***Transit:*** A shared mode of transportation that operates on a fixed route and fixed schedule and is available to all who pay the fare, including bus services, light rail, and heavy rail.

***Transit Oriented Development (TOD):*** Mixed-use neighborhoods designed to encourage and leverage transit ridership to create vibrant, complete communities. TODs often feature a rail or bus station at their center, surrounded by relatively high-density development decreasing in density as distance from the core increases. TOD neighborhoods encourage cycling and walking to maximize transit usage, feature streets with high levels of connectivity and traffic calming, and limit the land area dedicated to vehicular parking.

***Transit Station:*** Structures housing both passengers and transportation systems' operations and equipment.

***Transit Stop:*** A location along the street or transit line that has simple facilities like signage and shelters.

***Tree Stand:*** A plant community predominantly consisting of trees and other woody vegetation sufficiently uniform in species composition, age, arrangement and condition: an area to be distinguishable as a group from the forest or other growth in the adjoining area.

***Triplex:*** A residential building that has separate but complete facilities to accommodate three households as adjacent and/or stacked units. See also, ***Single-Family Attached Residential.***

## U

***Understory:*** Low trees and large shrubs located below the canopy in a wooded area.

***Universal Design:*** The simple design of both products and the built environment to be useable by people of all ages and abilities, and which promotes the ability for people to age in place.

***Unmet Housing Needs:*** The lack of housing options for households earning up to 100% of the Washington Metropolitan Area Median Income (AMI).

***Unstable Soils:*** Soils that because of their composition and unique landscape position have a higher than normal potential for erosion, particularly during periods of high rainfall.

***Use-Value Taxation:*** A program authorized by the state and implemented by localities at their option in which qualifying agricultural, forestal, and open space land is taxed at its use value rather than at its market value for development. Sometimes referred to as "land use taxation."

## V-Z



***Vacancy rate:*** The proportion of rental units that are available for rent or otherwise unoccupied. When used in the context of rental housing units, vacancy rate is an indicator of supply in the home rental market.

***Very Low-Income Household:*** A household with an annual income between 30 and 50 percent of the Area Median Income (AMI).

***Vision Zero:*** A strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.

***Warehousing:*** A land use involving the storage of goods that will be sold or distributed later.

***Watershed:*** All of the land area that drains water to a specific point such as a stream, river, lake, or bay. Watershed areas are defined by topography and vary in size from small local drainage areas to large river basins. Large watersheds are composed of multiple smaller watersheds. In Loudoun County, watersheds have been defined and mapped most often at one of two sizes for use in water resource and hydrologic studies. At the larger of the two sizes, the county is divided into 17 watersheds.

***Wellhead Protection Plan:*** A plan identifying and protecting the land area where subsurface water flows to public drinking water supply wells in order to protect groundwater from potential contaminants.

***Wetlands:*** Vegetated areas where plants are rooted in water or water-saturated soil, or that regularly tolerate flooding for extensive time periods. Includes but is not limited to swamps and marshes. Many wetlands do not appear wet at all times.

***Zoning District:*** A classification of land as designated by the Zoning Ordinance and depicted on the Zoning Map that prescribes applicable land use requirements and building and development standards.

***Zoning Ordinance:*** A local ordinance enabled by Section 15.2-2280 of the Code of Virginia that implements a locality's comprehensive plan by prescribing land use requirements and building and development standards.

# Appendix A

## GENERAL PLACE TYPE CONSIDERATIONS

The following prompts should be considered while devising and developing a project to assess whether a proposal is compatible with the place type and improves the site and its surroundings:

### Safety

1. Protection against traffic and accidents.
  - a. Can people walk or bicycle safely and comfortably?
  - b. Are streets planned with a Vision Zero strategy that will help eliminate traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all?
2. Protection against harm by others.
  - a. How is the public space made safe day and night? Are there people and activities at all hours because the area has, for example, both residents and offices?
  - b. Are sidewalks and trails, parking areas and outdoor public spaces clearly visible, comfortable and near activity areas during the day and night?

### Vibrant

3. Mobility.
  - a. How well do walkways and public spaces avoid physical elements that might limit walking, using a wheelchair, or pushing a stroller?
  - b. How easily navigated is the arrangement of sidewalks and trails, parking areas and outdoor public spaces?
4. Interaction.
  - a. What features invite visitors to rest and linger? Are seating options placed in or near interesting things like public art, a façade that invites one to spend time next to it, a bus stop, a park, or a plaza?
  - b. How well can people from adjoining developments walk or bike safely and comfortably to the development?
5. Options for sitting.
  - a. What are the obvious seating options such as benches or chairs? Is there only secondary seating such as a stair, seat wall, or the edge of a fountain?
  - b. What are the options for sitting that do not require patronage?
6. Options for talking and listening/hearing.
  - a. Is it possible to have a conversation here? What options are there to sit together and have a conversation?
7. Options for play, exercise, and activities.
  - a. Are there options to be active year round? Are there options to be active at multiple times of the day and year for all ages?

### Purpose

8. Scale.
  - a. How well do public spaces and the buildings that surround them exhibit a human

- scale? How well does the space function for people in small gatherings and large events?
- b. How does the development exhibit high quality design through shape, materials, finish, relationship with surrounding buildings, and coordinated use of lighting, public art, street furniture, surfacing, planting, etc?
9. Context-sensitive design.
- a. How well are existing environmental features protected and integrated into the design?
  - b. To what extent are pre-development views retained?
  - c. How well does the project protect ridgelines?
  - d. How are impacts on water quality addressed?
  - e. Is open space accessible to the public and does it connect to open space on adjacent properties?
  - f. Are most wetlands, lakes, streams, and other water amenities retained? Are significant natural amenities at least partially fronted by thoroughfares rather than hidden behind back yards?
10. Residential neighborhood characteristics.
- a. Are there a variety of dwelling types?
  - b. Are there places to work in the form of office buildings or live-work units?
  - c. Are there shops sufficiently varied to supply the ordinary needs of a household such as a convenience store, a post office, a teller machine, or a gym?
  - d. Do thoroughfares within the neighborhood form a continuous network, providing for the dispersment of traffic? Are the thoroughfares connected to those of adjacent neighborhoods and communities?
  - e. Are thoroughfares relatively narrow and shaded by rows of trees that slow traffic and create an appropriate environment for pedestrians and bicyclists?
  - f. Are the large areas of open space between neighborhoods connected into continuous corridors?
  - g. Are culs-de-sac avoided except where absolutely necessary due to natural conditions?
  - h. Are there public places for people to congregate and areas to engage in recreational activities dispersed throughout the neighborhood?

## Urban Policy Area Design Guidelines

Unless otherwise specified, the following guidelines apply only within the Urban Policy Area:

### Building Orientation and Setbacks

Buildings in the UPA, particularly along urban-type streets and “main streets”, should have common design strategies that promote walkability, accessibility, and activity in the “outdoor room” or “outdoor hallway” between streets and buildings.

1. Locate buildings at the front property line or at the minimum required setback to create a strong pedestrian pathway framed by adequate spaces for sidewalks, plantings, street furnishings, and lighting along buildings. Where additional setback is necessary adjacent

to the street, that area can be used to create a plaza, pocket park, or other public gathering space that incorporates activity space, outdoor seating, landscape features, and/or water features.

2. Design grade level entrances providing direct access to building entrances from sidewalks and streets.
3. Make primary entrances to buildings visible from the street and sidewalk.
4. Create primary entrances for pedestrians that are easily identifiable and accessible, with a direct a path to transit amenities.
5. Maintain at least one entrance from the public way at retail and restaurant establishments.
6. Incorporate transitions from the sidewalk to the front door such as landscaping, overhead cover (canopies, awnings or trellises) and/or porches at individual entrances to businesses and residences.
7. Comply with the Americans with Disabilities Act (ADA), Universal Design, and International WELL Building Institute guidelines at primary pedestrian entrances, so that alternate approaches for persons with mobility limitations, such as a ramps next to primary pedestrian entrances, are not necessary.
8. Incorporate passageways or alleys into mid-block developments, particularly on long blocks, that facilitate safe pedestrian movement through the depth of the block to the front of the next parallel block. Ensure that pedestrians do not have to walk the circumference of a block in order to access the middle of the next parallel block or alley or parking behind the block.
9. Activate the use of mid-block passageways or alleys so that they are visually appropriate, functional, well-lit, and safe spaces.



## Building Design

Addressing architectural features of buildings is an important component of creating the ‘sense of place’ that Loudoun County desires for the UPA, particularly with respect to the denser and more intensely used areas.

1. Incorporate different façade treatments such as forms, textures, colors, materials, and architectural features that add visual distinctions throughout the UPA, while building

consistency in their application within individual developments to create a unique and identifiable character for each new development.

2. Add scale and interest to the building façade by articulated massing. Blank or long expansive walls with no detail or variation in form, color, texture, openings or material are undesirable, particularly in activity centers and along pedestrian pathways or linkages.
3. Use of architectural features, enhanced materials, fenestration, planting, lighting, and signage should contribute to a more pedestrian friendly streetscape.
4. Reinforce the existing façade rhythm along the street with architectural elements, landscaping, signage, street lighting, and street furnishings.
5. Include overhead architectural features where compatible with building design, such as awnings, canopies, trellises or cornice treatments that provide identifiable entries, shade, and reduce heat gain.
6. Contribute to visual interest, human activity along streets and neighborhood safety by providing pedestrian scaled windows and fenestrations at the street level that act as pathways to activity inside buildings and “eyes on the street”.
7. For ground floor retail, restaurants, and professional office uses within mixed-use environments, along main streets, and other activity centers, devote a minimum of 65 percent to 75 percent relative to the length of the façade to pedestrian entrances and pedestrian-level display windows.

### **Sidewalks, Streets Trees, and Plantings**

Sidewalks, in conjunction with street design and building placement, support ease of pedestrian movement and link people from their homes to community amenities such as parks, public places, retail and commercial areas, transit stops, nodes, landmarks, and the Metrorail stations. Sidewalks also enrich the quality of the public realm by providing appropriate connections and street furnishings in the public right of way. They create the basis for the concept of the ‘outdoor rooms’ and ‘outdoor hallways’ that support human activity at planned centers and along linkages.

Planting street trees and other ground cover has proven to improve the human experience between buildings and streets. Along with creating inviting spaces, comfort for human activity, and positive impacts to the natural environment, street trees and ground level plantings contribute greatly to the visual appeal of building façades and outdoor spaces.

1. Create a continuous and predominantly straight sidewalk to support two-way pedestrian traffic with enough space for streetscape amenities such as street furnishings, street trees, ground cover plantings areas, street lighting, signage, and utilities.
2. Create streetscape amenities that act as a buffer between pedestrians and moving vehicles by the use of landscape and street furnishings (benches, newspaper racks, pedestrian information kiosks, bicycle racks, bus shelters, and pedestrian lighting, etc.).
3. Use street furnishings to create a consistent rhythm (i.e., consistent height of light standards or consistent shade pattern of trees) and encourage the activity and use of the sidewalk area between buildings and streets.
4. Incorporate closely planted shade-producing street trees to encourage pedestrian activity along streets and promote comfort in the outdoor activity spaces. They may be interspersed

with existing or proposed street trees. Select native trees and plantings with low maintenance requirements. Plant outdoor spaces with ground cover, low-growing vegetation or permeable materials that accommodate both pedestrian movement and car door swings where on street parking is designed and planned. Incorporate stormwater bioswales with native plantings into the streetscape to serve both visual interest and stormwater management function.

### **Street Furnishings and Lighting**

Street furnishings and lighting should be designed to strengthen the pedestrian experience and encourage outdoor use and activity in activity centers and spaces between buildings and streets. These amenities should also serve to create neighborhood identity and visual coherence with the use of building and street lighting.

1. Provide usable space in the sidewalk areas that include street furnishings such as benches, trash cans, kiosks, street gardens, bike racks, outdoor sitting spaces, and public art.
2. Provide adequate lighting levels to safely light the pedestrian path.
3. Use adequate, uniform, human-scaled, and glare-free lighting to avoid uneven light distribution, harsh shadows, and light spillage.
4. Use poles, standards, fixtures, and lighting types that achieve “dark sky” compliant goals and objectives, such as lighting when necessary, reducing glare, use of energy efficient lighting systems, lighting enough to promote safety and security, and considers ecological impacts to the natural environment and humans.

### **On-street Parking**

On-street parking provides numerous benefits in urban environments such as reducing the need for parking decks and parking lots, buffering pedestrians from moving vehicle traffic, vehicle traffic calming, and by providing parking near community amenities, businesses, and retail uses that shape the ‘outdoor rooms’.

1. Provide parallel or angled on-street parking wherever possible.
2. Eliminate street parking within pedestrian crossings.
3. Create traffic calming along streets designed for low speeds.

### **Parking Structures**

To promote an active and diverse streetscape and to minimize the visual impact of parking, parking structures should be integrated with surrounding development.

1. Parking structures that front on streets should wrap the parking structure at the street level with an active use. Active uses may include retail, office, or residential uses and should be based on the allowed uses in each respective Place Type.
2. The height and mass of parking structures should be consistent with the design character of the area within which the structure is located (e.g., a five-story parking structure should not be situated in an area that consists primarily of two-story buildings).
3. Pedestrian entrances should be well-defined and attractive.

4. Façades that face public rights-of-way should incorporate massing, textures, colors, and other architectural techniques that are of similar style and quality as primary adjacent buildings.
5. Parking structures should be designed to conceal the view of all parked cars and internal light sources from adjacent public right-of-way or public open space for the full height of the structure.

### **Public Places**

Public places are areas that serve as centers for human activity, which could be a destination, a space to pass through, or a linkage. These places should provide a focal point for gathering, communicate community or neighborhood identity, and help make for complete neighborhoods. These places could include plazas, promenades, courtyards, park spaces that are landscaped and/or hardscaped, and should include trees and ground cover vegetation to create inviting spaces for activity and gathering.

1. Orient buildings so that public places receive sunlight as well as high quality, safe, night lighting.
2. Balance sunlight accessibility with shade producing trees and overhead cover.
3. Provide a variety of on-site features to maximize use and enjoyment of public places, including but not limited to:
  - a) Water features / public art,
  - b) Recreational features,
  - c) Outdoor furnishings,
  - d) Vegetative ground cover, gardens and shade tree plantings/reforestation,
  - e) Use of stormwater management best management practices to create year-round open space amenities with walking paths and benches,
  - f) Open places for gathering large groups of people, and/or
  - g) Variety of ground cover materials such as permeable and impermeable surfaces and natural ground cover.

## **Suburban Policy Area Design Guidelines**

Unless otherwise specified, the following guidelines apply only within the Suburban Policy Area:

### **Development Criteria:**

1. Ensure that the use contributes to and complements the existing development pattern;
2. Consider innovative uses that contribute to the surrounding community;
3. Provide consistency with the desired form, character and land uses of the underlying Place Type;
4. Differences between the height, scale, bulk, setback from the street, or other physical features of the proposed development, and existing development in the immediate area;
5. Presence and quality of a spatial or physical transition between uses;
6. Availability of adequate roads, services and infrastructure; and

7. Relationship and incorporation of existing Natural, Environmental and Heritage resources.

### Building Orientation and Setbacks

1. All development should include a site design that is compact and makes buildings the prominent feature of the site as viewed from adjoining/adjacent roads, especially along major thoroughfares. Site design and development will strive to minimize site disturbance and minimize removal of existing, viable vegetation.
2. It is desirable to have civic spaces, open spaces, green spaces, and vegetation to separate parking lots from buildings and areas for human activity. Civic spaces and green spaces are encouraged to have public art enhancements.



### Building Design

1. Buildings within larger multi-building developments should exhibit a unity of design through the use of similar elements such as rooflines, exterior materials, facade treatments, window/fenestration arrangements, sign location, and architectural styles and details.
2. Freestanding stores, retail centers, commercial centers, and restaurants will be encouraged to provide usable outdoor civic or public spaces.
3. Required drainage and stormwater management facilities, such as holding basins, drainage swales, and culverts should be incorporated as features into the site design of the project, to the extent possible. Natural drainage features should be conserved to the greatest extent possible, minimizing impervious facilities to the extent technically feasible.
4. Building massing and walls must be varied to avoid long, flat facades and break down the scale of large buildings and commercial/retail centers. It is desirable that building facades should incorporate wall relief, recesses, off-sets, angular forms, or other features. Buildings cannot present a "blank side" to neighboring properties.
5. Pitched, mansard, and other distinctive roof forms are strongly encouraged where appropriate.
6. Rooftop mechanical equipment will be screened with materials that blend with the architecture and will be perceived as an integral part of the principal building. Ground mounted mechanical equipment will also be screened either by incorporating it in the building architecture or by landscaping.
7. Buildings will incorporate covered entrances to provide weather protection for shoppers and create a pedestrian-oriented environment.
8. Retail development should avoid the appearance of strip commercial development which is commonly characterized by the following features to be avoided: multiple entrances serving individual uses, minimal setbacks and landscaping, and multiple structures and signs without a unified design scheme.



## **Sidewalks, Streets Trees, and Plantings**

1. Large parking areas will be landscaped with trees and shrubs throughout to reduce the visual impact, provide shade, and reduce the heat island effect or heat absorption of the parking area.
2. The street frontage of development will be landscaped with trees to help create a green edge on both sides of the street.
3. Existing environmental features such as natural topography, hedgerows, mature trees, and berms will be integrated into the landscape plan for non-residential centers, when feasible.
4. Non-residential buildings and parking areas will be sufficiently screened and buffered from adjoining residential areas by distance, transitional uses, landscaping, and/or natural vegetation to mitigate the effects of noise, lighting, and traffic on the surrounding residences.
5. Residential areas will be buffered from adjacent non-residential uses by trees, fences, and hedges.
6. Sidewalks will be provided to all development to accommodate benches, bikes, strollers, trees, and planters.

## **Street Furnishings and Lighting**

1. Provide usable space and amenities when planning sidewalks, including street furnishings such as benches, trash cans, kiosks, street gardens, bike racks, outdoor sitting spaces, and public art.
2. Signs for development will be developed as an integral part of the overall design. A unified graphic design scheme is strongly encouraged that is in conformance with an appropriate regulatory framework.
3. Site and building lighting will reduce glare and spillage of light onto adjoining properties and streets. Fixtures should be attractive site elements that are compatible with the architecture of the development.
4. Both lighting and signs will be designed for pedestrians, bicyclists, and vehicles.

## **Parking, Circulation, and Loading**

1. All development should strive to create inter-parcel connectivity for pedestrian and vehicular circulation to increase pedestrian activity and decrease vehicular traffic on roadways necessitated by broken inter-parcel connections.
2. Pedestrian traffic, internal to non-residential centers, should be provided with a safe travel route from the parking area to the building with a demarcated pathway and clear directional signage. Trees and other plantings should be provided along the walkway.
3. Parking areas will be visually screened from adjacent streets and residential areas by heavy landscaping, depressing the parking area, constructing earthen berms, and/or other means.
4. All loading and storage areas must comply with Zoning Ordinance regulations and must be screened from adjacent residential areas by earthen berms, masonry walls, permanent wooden fencing, or dense landscaping.

5. Parking structures should be integrated with surrounding development to promote an active and diverse streetscape and to minimize the visual impact of parking. Pedestrian entrances should be well-defined and attractive.
6. Parking structures that front streets should wrap the parking structure at the street level with an active use. Active uses may include retail, office, or residential uses and should be based on the allowed uses in each respective Place Type.
7. The height and mass of parking structures should be consistent with the design character of the area within which the structure is located (e.g., a five-story parking structure should not be situated in an area that consists primarily of two-story buildings).
8. Façades that face public rights-of-way should incorporate massing, textures, colors, and other architectural techniques that are of similar style and quality as primary adjacent buildings.
9. Parking structures should be designed to conceal the view of all parked cars and internal light sources from adjacent public right-of-way or public open space for the full height of the structure.
10. Surface parking should be located to the rear or side of buildings and away from the street or street intersections, while providing direct pedestrian access to the buildings.
11. Textures, patterns, and colors are encouraged in the design of surface parking to provide breaks in large areas of pavement and distinguish between areas for pedestrian and vehicular movement.
12. Large surface parking lots should be functionally divided into smaller, well-landscaped and shaded parking clusters.

## **Transition Policy Area Design Guidelines**

Unless otherwise specified, the following guidelines apply only within the Transition Policy Area:

1. Integrate buildings and parking into the existing natural landscape and provide usable open space that is accessible to residents and the public, subject to the following:
  - a. Perimeter open space screening from roads and other communities may be the predominant component of the 50 percent open space requirement,
  - b. Distribute community greens, playgrounds, and gathering spaces within residential development,
  - c. Link open space to surrounding neighborhoods and public facilities with pedestrian and bicycle networks,
  - d. Link open space to natural, environmental, and heritage resources, unique site features, and open space in other communities,
  - e. Locate low intensity parks that emphasize undisturbed open space in highly visible areas or in conjunction with schools, churches, and neighborhood commercial centers where they can serve as a buffer for adjoining homes.
2. Ensure that open space within developments creates or enhances the following:
  - a. The 300-foot buffer and 200-foot transitional area along the Bull Run in the Upper and Lower Foley and Lower Bull Run subareas,

- b. The 300-foot buffer and 1,000-foot voluntary open space area along the Goose Creek, Goose Creek Reservoir, and Beaverdam Reservoir in the Lower Sycolin and Middle Goose subareas,
  - c. A contiguous network of green spaces to supplement the natural, environmental, and heritage resources connecting communities and natural resource areas, and
  - d. A public trail and park network to destinations throughout the area.
- 3. Locate development on areas of the site that afford the least disruption of views of the landscape.
- 4. Protect the historic context of nearby archaeological and historic sites and along scenic corridors.
- 5. Provide trails and sidewalks that connect to adjacent neighborhoods and other destinations within and outside the project.
- 6. Ensure that clusters of residential units proposed in TPA communities are appropriate in number of units to reflect a traditional hamlet scale with multiple clusters separated by open space areas and featuring:
  - a. A variety of lot sizes with no minimum lot size requirement and minimal setbacks,
  - b. A predominantly single-family residential development pattern,
  - c. A network of publicly accessible trails and pedestrian sidewalks linking communities and amenities, and
  - d. A network of tree-lined streets constructed at minimum required widths to merge into the open landscape and slow traffic.
- 7. Ensure that housing diversity and affordability are components of larger and higher density developments, such as Transition Compact Neighborhoods by including a mixture of housing types, and a range of building and lot sizes and configurations.
- 8. Include varying densities in neighborhoods, with higher densities generally in close proximity to community greens, civic uses, or small-scale retail uses.
- 9. Diversify housing size, unit types, lot sizes, and lot pattern along each street frontage and in the same blocks to reflect the design of traditional villages and towns.
- 10. Include pedestrian features, landscaping, short blocks, few dead ends or cul-de-sacs, and traffic calming features.
- 11. Locate buildings close to the street but require some discernable variations in building setbacks along residential streets.
- 12. Encourage designs where building facades have differentiated surfaces and design elements consistent with surrounding development that follows natural contours.
- 13. Address parking in Transition Compact Neighborhood and Transition Community Center place types through a combination of on-street and off-street choices designed and located to minimize their visual impact.
- 14. Develop employment uses at a scale that minimizes their intrusion into the rural and natural landscape and their impact on surrounding roads and communities by:
  - a. Screening all outdoor storage and equipment parking areas from view of adjoining properties and roads,
  - b. Minimizing the number of entrances from major collector or arterial roads;
  - c. Ensuring adequate road and infrastructure capacity,

- d. Avoiding large expanses of blank building surfaces by using articulation, fenestration and façade treatments, especially when the facades are visible from public roads, and
- e. Separating industrial uses from residences by locating less-intensive uses adjacent to residential uses or using natural or manmade barriers between the uses.

## Rural Policy Area Design Guidelines

Unless otherwise specified, the following guidelines apply only within the Rural Policy Area Rural North and Rural South Place Types:

1. Development on ridgelines or hill tops should be avoided to retain the rural character of the landscape and protect viewsheds.
2. Site development should preserve existing land forms and minimize significant alterations to the topography while incorporating natural features, trees, hedgerows and other vegetation into the design to protect viewsheds and provide visual buffers between parcels.
3. Required drainage and stormwater management facilities, such as holding basins, drainage swales, and culverts should be incorporated as features into the site design of the project, to the extent possible. Natural drainage features should be conserved to the greatest extent possible, minimizing impervious facilities to the extent technically feasible.
4. Development should be sited within the landscape to minimize visibility from roadways and other properties while preserving suitable farmland.
5. Outdoor lighting should be limited to areas where activity occurs and use the minimum light intensity necessary to eliminate glare and light trespass.
6. Trail connections should be provided when feasible, to link private and public lands as part of a multi-use trail network.
7. Rural Cluster subdivisions are a land development design that compactly groups homes on small lots arranged in a traditional community pattern while retaining large tracts of land for open space, agricultural production, and/or rural economy uses to preserve natural features and the rural character. When developing Rural Cluster subdivisions in the RPA:
  - a. Use existing topography, hedgerows, mature woodlands, and other site features to influence the location of the clusters to maintain the rural and scenic quality of the landscape.
  - b. Provide a compact cluster of building lots and maximize open space.
  - c. Design roads and driveways to follow the natural contours of the land. Roads and driveways should be the minimum width necessary to provide safe travel ways.
  - d. Cluster development to retain large areas of agricultural soils for farming
  - e. Encourage the use of shared water and wastewater systems to serve cluster developments to protect water resources.
8. Site building and structures should blend with the natural landscape to reduce their perceived scale, mass, and height, thus reducing their impact on the landscape and surrounding viewsheds.

9. Buildings should incorporate architectural styles and design elements that emulate and relate to the historical and regional architecture of Loudoun which contributes to the visual quality and identity of the RPA.
10. Parking, mechanical units, and other site development features should be located to diminish their visual impact from public roadways and neighboring properties.

## **Rural Historic Villages Design Guidelines**

Unless otherwise specified, the following guidelines apply only within the Rural Historic Villages:

1. New development should reinforce the existing pattern of streets/roads in the Rural Historic Villages.
2. The streetscape of Rural Historic Villages should incorporate sidewalks, crosswalks, lighting, landscaping and other street amenities which enhance the pedestrian experience and contribute to the visual quality of the village.
3. Sidewalk and trail networks within the Rural Historic Villages should be expanded to provide connections to surrounding trail networks in the RPA.
4. Incorporate and retain existing trees and other site vegetation, especially when these features form a visual edge defining the streetscape or space between properties.
5. New buildings will be oriented on their site to maintain the existing street pattern, street design, and relationship to other buildings to reinforce the historic development pattern of the village.
6. The scale, size, massing, and design of new buildings will adopt building forms and architectural styles related to the individual character of the village.
7. Where the footprint of a new building is larger than existing buildings, reduce the perceived mass by dividing the building into smaller pieces with varying wall planes and rooflines. Design new commercial development to conform with the storefront configuration of existing historic examples, when no local precedent exists look to other examples in the villages to inform new construction.
8. Locate parking, mechanical units, and other site features in locations which diminish their visual impact from the street.

## **Joint Land Management Area Design Guidelines**

Unless otherwise specified, the following guidelines apply only within the JLMAs. These guidelines will be reviewed concurrently and coordinated with Town guidelines or policies related to the JLMA area.

1. Support the preservation and protection of historic, cultural, and environmental resources in and around each Town.
2. Support development of distinct “gateways” into each community and protect rural view sheds leading into the towns. Gateway concepts will be developed with the Town and may include measures to protect existing trees, hedgerows, viewsheds, and vistas, design

guidelines for lot configuration to continue the rural lot pattern, new landscaping, entrance features, and other techniques.

3. Protect the natural or rural scenic views along roads leading into the Towns through measures such as revised State Road Improvement Standards, scenic or conservation easements, the creation of historic corridor overlay zoning, and rural design concepts.
4. Encourage a variety of housing types and commercial development within the JLMA that are consistent with applicable Town and County policies, are compatible with the existing communities, and extend in a contiguous, rational and convenient manner from the Towns.
5. Apply the SPA Design Guidelines when reviewing non-residential developments located within the Leesburg JLMA.
6. Encourage residential communities in the JLMA that propose to connect to municipal utilities to exhibit:
  - a. A variety of lot sizes and, where permitted, a variety of unit types,
  - b. A street network without culs-de-sac and P-loop streets with numerous connections to existing streets,
  - c. An interconnected block pattern with compact lots, shallow front and side-yard setbacks, and small block sizes,
  - d. Sidewalks along all streets, providing access to the town or neighborhood center, public buildings, parks, and other destinations,
  - e. A compatible mix of complementary residential and non-residential uses such as home-occupation businesses, churches, and schools,
  - f. Parks, squares, or greens that provide a combination of natural and passive open spaces throughout the development, and
  - g. A central public focal point consisting of any combination of a park (village green); a public facility such as a church or community center; natural features; or neighborhood commercial uses.

DATE

11/2/2023

DRAWN BY

MNP

CHECKED BY

JJD

**VILLAGE OF WATERFORD  
SOCIAL VULNERABILITY INDEX**

SOURCE: VRFIS SVI LAYER

PREPARED FOR LOUDOUN COUNTY  
DEPARTMENT OF TRANSPORTATION AND CAPITAL INFRASTRUCTURE

SCALE

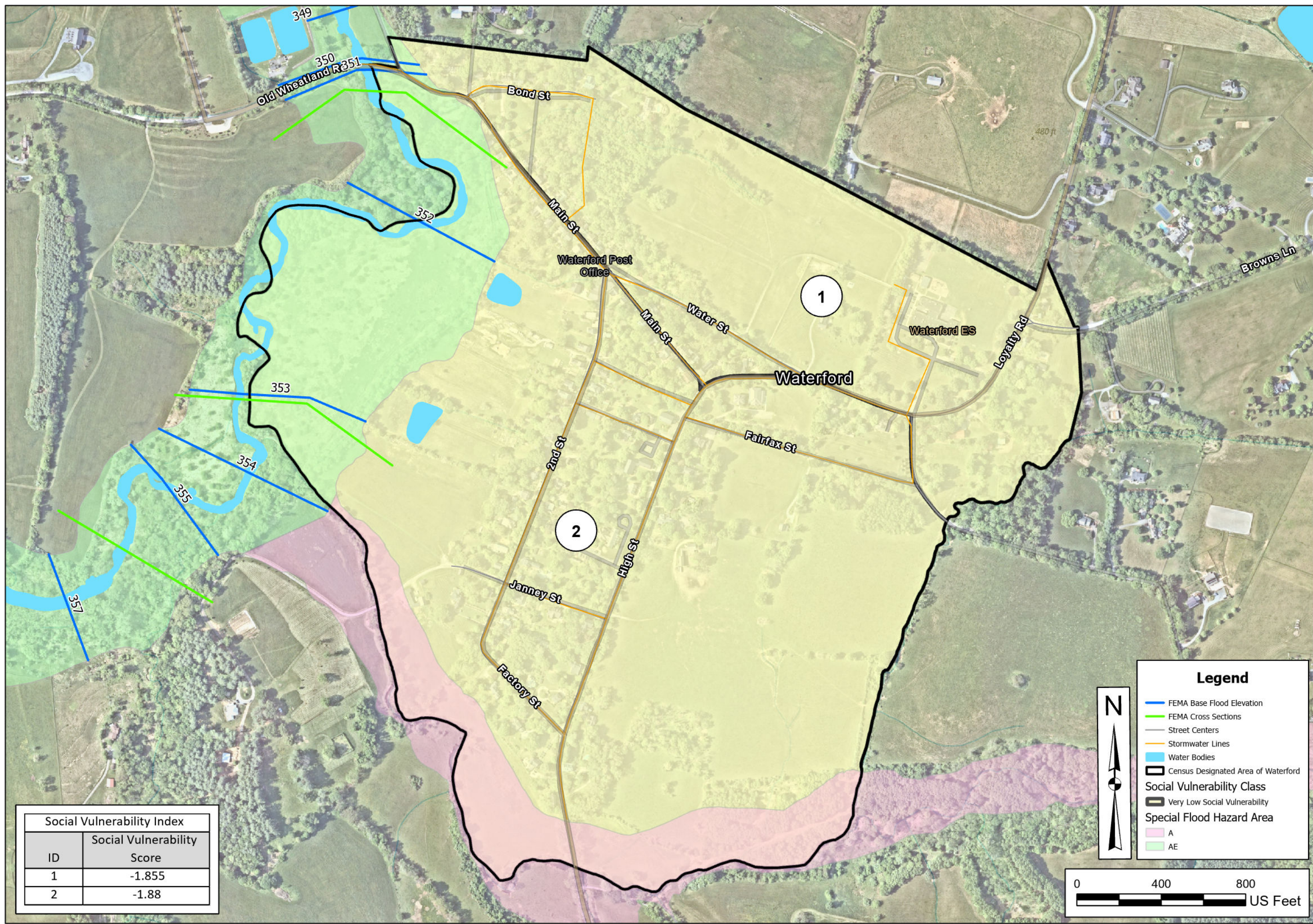
1" = 400'

PROJECT NUMBER

N/A

SHEET NUMBER

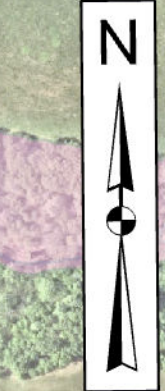
APPENDIX C



Social Vulnerability Index	
ID	Social Vulnerability Score
1	-1.855
2	-1.88

**Legend**

- FEMA Base Flood Elevation
- FEMA Cross Sections
- Street Centers
- Stormwater Lines
- Water Bodies
- Census Designated Area of Waterford
- Social Vulnerability Class**
- Very Low Social Vulnerability
- Special Flood Hazard Area**
- A
- AE



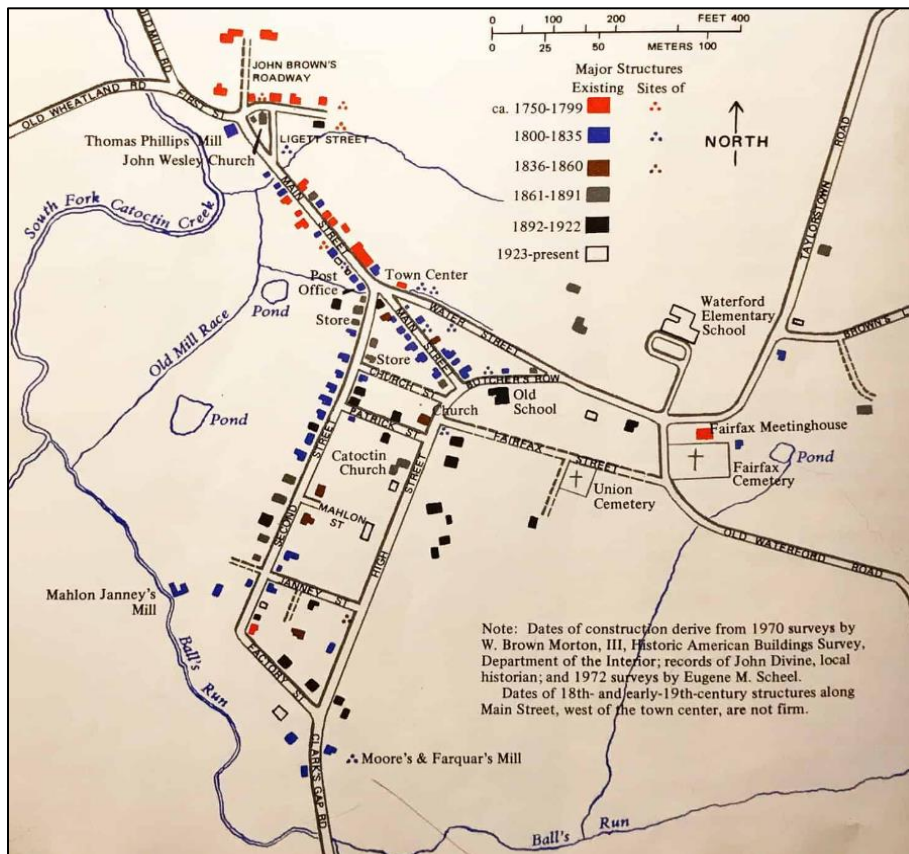


# Village of Waterford, Virginia

## Stormwater Master Plan Development

### Community Flood Preparedness Fund (CFPF)

### Grant Application Package



Submitted by:

Loudoun County  
Department of Transportation and Capital Infrastructure  
101 Blue Seal Drive, Suite 102  
Leesburg, VA 20177





## **COMMUNITY FLOOD PREPAREDNESS FUND GRANT APPLICATION**

The Village of Waterford is pleased to submit this application for a Community Flood Preparedness Fund (CFPF) Study Grant that has been developed to meet the applicable scoring criteria outlined in Appendix D of the CFPF Grant Manual. The impact of flooding caused by the South Fork of Catoctin Creek and inadequate stormwater management to the residents and historically significant areas of the Village of Waterford has necessitated this study grant, which will bridge the funding gap between the Village's CIP allocation for this study and estimated study costs. If awarded, this grant will be used to study the existing hydrologic and hydraulic features of the Village of Waterford, model proposed conceptual solutions to help abate localized drainage issues and impacts due to large scale flooding, and contribute to the protection of Waterford's rich heritage and National Historic Landmark (NHL) status. Refer to the Scope of Services included in **Section B** for additional information about the proposed work that will be covered under this study grant and **Section A** for the qualifications of the individuals conducting the study.

### **Table of Contents**

#### **SECTION A - ORGANIZATIONAL DATA**

- Scope of Work Narrative and Qualifications of Project Team
- Waterford Foundation Letter Regarding Historic and Current Flooding Issues
- Application Form for Grant and Loan Requests for All Categories

#### **SECTION B – BUDGET DATA**

- Project Budget Narrative and Scope of Services
- Budget Narrative Template
- Funding Request Authorization

#### **SECTION C – CHECKLIST REQUIREMENTS**

- Completed 2023 CFPF Funding Manual Checklist
- Detailed Map(s) of the Project Area
- FIRMette of the Project Area(s)
- Historic Flood Damage Data / Images
- Copy of the Loudoun County Floodplain Ordinance
- Loudoun County 2019 Comprehensive Plan
- Social Vulnerability Index Score(s) for the Project Areas



# **SECTION A – ORGANIZATIONAL DATA**

Scope of Work Narrative and Qualifications of Project Team

Waterford Foundation Letter - Historic and Current Flooding Issues

Application Form for Grant and Loan Requests for All Categories



# **Scope of Work Narrative and Qualifications of Project Team**



## Scope of Work Narrative

This section includes a summary of the project’s background, goals, scope of work, and impact on the community, the qualifications of the individuals on the study project team, a letter from the Waterford Foundation outlining some of the historical flood events that have occurred, and the application form for grant and loan requests for all categories of the CFPF grant.

The impact of flooding caused by the South Fork of Catoctin Creek and inadequate stormwater management to the residents and historically significant areas of the Village of Waterford has necessitated this study grant, which will bridge the funding gap between the Village’s CIP allocation for this study and estimated study costs. If awarded, this grant will be used to study, model, and identify inadequacies in the Village’s existing stormwater management system, model proposed solutions to riverine and localized flooding, and contribute to the protection of Waterford’s rich heritage and National Historic Landmark (NHL) status. This project will be housed under a larger Village of Waterford ‘Preserving the Landmark Infrastructure Improvement’ project, which has been adopted into the FY2024 budget and can be found in **Section B**. The Village of Waterford does not have specific data pertaining to repetitive loss properties or insurance claims but there have been instances of recorded damage to historical areas, such as those recorded in the letter from the Waterford Foundation included in this section. This project was not outlined in Loudoun County’s local resilience plan, but study results will be provided in an update of Loudoun County’s Department of Conservation and Recreation (DCR) resilience plan in the future.

The goal of this project is to develop a Village of Waterford Stormwater Master Plan that can be used to guide decisions and infrastructure improvements. A detailed Scope of Services for the development of the Village of Waterford Stormwater Master Plan that elaborates on each task, project assumptions and exclusions, and schedule is included in **Section B** and the qualifications of the individuals executing this project’s scope of services are included in this section. An outline of the Kimley-Horn scope of services for this project is as follows:

1. Site Base Mapping, Project Due Diligence, and Site Visit
2. Hydrologic Analysis of the Village of Waterford
3. Development of Village of Waterford Watershed Model
4. Development of Village of Waterford Flood and Drainage Improvements Concept Plan
5. Development of Village of Waterford Stormwater Master Plan Report
6. Meetings & Coordination

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

- All developed Hydrologic and Hydraulic Model(s)
- Village of Waterford Flood and Drainage Improvements 24 x 36 AutoCAD Derived Conceptual Plan
- Village of Waterford Stormwater Master Plan – Final Report
- All maps, models, analyses, spreadsheets, and base data for the design (if requested)



This project is estimated to be completed by December 31<sup>st</sup>, 2024, assuming Kimley-Horn receives notice to proceed by January 1<sup>st</sup>, 2024, and survey data is provided to Kimley-Horn prior to March 31<sup>st</sup>, 2024. Loudoun County’s Department of Transportation and Capital Infrastructure (DTCI) is responsible for managing this project and project progress and budget will be tracked monthly and reported to the County with a monthly progress report containing documentation of services provided. Because the proposed project is a study, no operation or maintenance will be required on behalf of DTCI or Kimley-Horn. Potential project partners for this project include the Waterford Foundation, National Park Service, and Catoctin Creek Scenic River Advisory Committee.

The Village has historically had drainage and flooding issues and has documented the following problem areas within its drainage system according to the “Preserve the Landmark” document dated August 2022:

- Many roadside ditches have been eliminated over the years to allow for additional parking.
- A majority of culverts along the roads have been either crushed or are clogged with silt and debris.
- Existing roadside ditches and/or storm sewers do not adequately handle the storm runoff based on current stormwater regulations.
- Gutters and inlets to pick up the stormwater runoff along the roadways are inadequate.
- The outfalls are generally inadequate to handle the storm events, resulting in localized flooding.
- There are currently no best management practices (BMPs) evident within Waterford based upon site visits and a review of the aerial topographic data. Stormwater runoff typically flows directly into the South Fork Catoctin Creek without any practical BMP measures.

Although it will not likely impact the state’s resilience to flooding, developing a Stormwater Master Plan utilizing the tasks and procedures in Kimley-Horn’s scope of services will help strengthen Waterford’s resilience to flooding on a local and basin-wide scale and will allow for the design of drainage infrastructure improvement projects to aid in protecting its residents, historic landmarks, and NHL status.



## Key Individuals

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



**Jon D'Alessandro, P.E.**

*Project Manager*

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



**Jared Hodes, P.E.**

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

online dashboard creation, and compiling and editing ESRI geodatabases for asset management. He has performed field work for stream, stormwater, precipitation, and geophysical measurements and for pollutant sampling projects.



**Juan Campos, P.E.**

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



**Joe Arizzi, P.E.**

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



**Michelle Manfrey, EIT**

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



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

## Relevant Experience

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

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

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

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

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

## Special Qualifications

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

## Professional Credentials

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



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

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

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

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

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

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

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

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





**Jared Hodes, P.E.**  
Project Engineer

### Relevant Experience

#### **Stafford Drive Stream Restoration CLOMR, City of Fairfax, VA —**

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

#### **The Lakes Dam Inundation Study and Emergency Action Plan Development, City of Fayetteville, NC —**

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

#### **Fairfax County Floodplain Use Determination (FPUD) Reviews and Other Services, Fairfax County, VA —**

Project Manager. Jared is leading a team contracted to provide engineering augmentation services for county reviews of FPUD requests. This includes utilizing GIS-based tools and detailed Zoning Ordinance understanding to assess if the proposed work is approvable under Zoning Ordinance statutes. This work also includes cost estimation in accordance with FEMA NFIP Substantial Improvement guidelines.

#### **East Durham Water Sewer and Belt Street Stormwater, Durham, NC —**

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

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

### Special Qualifications

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

### Professional Credentials

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



schedule milestones to bid the work for construction in accordance with the various funding sources.

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

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

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



**Juan Campos, P.E.**  
Project Engineer

## Relevant Experience

### **Stafford Drive Stream Restoration Construction Plans, Fairfax, VA —**

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

### **2022 Virginia Community Flood Preparedness Fund – Resiliency Plan and Mosby Woods Study, Fairfax, VA —**

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

### **Outfall and Gully Stabilization Project (OGSP) 100% Construction Plans, Fairfax, VA —**

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

### **Stormwater and Flooding Resilience Plan Development, City of Winchester, VA —**

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

### **Tye River Stream Restoration Guidance Document, Nelson County, VA —**

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

## Special Qualifications

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

## Professional Credentials

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



**Joe Arizzi, P.E.**  
Project Engineer

## Relevant Experience

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

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

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

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

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

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

## Special Qualifications

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

## Professional Credentials

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



**Michelle Manfrey, EIT**  
Project Engineer

### Relevant Experience

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

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

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

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

### Special Qualifications

- Applied Fluvial Geomorphology (Rosgen Level 1)

### Professional Credentials

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



Loudoun County - Village of Waterford SWM Plan Development  
Community Flood Preparedness Fund (CFPF)  
Grant Application Package – Section A

# **Waterford Foundation Letter Regarding Historic and Current Flooding Issues**



# Waterford FOUNDATION, INC.

Post Office Box 142 • Waterford, Virginia 20197 • 540-882-3018  
[www.waterfordfoundation.org](http://www.waterfordfoundation.org) • [info@waterfordfoundation.org](mailto:info@waterfordfoundation.org)

## **Information for the stormwater management grant:**

Reports of damage from stormwater appear in four of the Foundation's Annual Reports. Reports do not begin until the early 1980's so they are not fully representative of issues that have emerged. The following are excerpts from those four reports regarding Foundation property conditions:

2001

The Tin Shop (owned by the Foundation at that time, but now a private residence) has water damage and street drainage problems.

2002

Regarding the Tin Shop, next year we hope to address long-term problems in front of the building where there is inadequate drainage for stormwater.

2003

The Bond Street Meadow (Foundation property) was hit hard by September storms; the creek footbridge also fell victim to the onslaught.

2011

A major focus of the Phillips Farm Committee has been reviewing a variety of options to address erosion problems and manage surface water along the 5500 Foot segment of the South Fork of the Catoctin Creek. The Tannery Bridge is being relocated because of severe erosion.

## **Current Conditions that affect Foundation and private properties in the village of Waterford:**

Entrance to the village on Clarks Gap Road at the stream crossing is subject to road damage and erosion.

On Janney and Patrick Streets, the damage to the sides of the road and deep crevices caused by flowing water is obvious. Water streams down both streets, flooding the road and walkways on Second Street.

Properties on the side of Second Street that backs to the Phillips Farm tract regularly have flooded basements and standing water.

On the Phillips Farm, the original drainage system built by the former owners that consisted of clay piping is collapsing causing dangerous sink holes and deep gullies. The water has no where to go.

Because the millrace is no longer acting as one of the paths for water to move around the village homes and roads, water traveling downhill from Second and Main Streets toward the Catoctin has caused major erosion – both along the streams and along the creek.

Bond and Liggett Streets show evidence of severe rutting and degradation of the gravel surface.

In the village center, a stream runs under the Corner Store (Foundation Property) and across the street under the foundation of the Tin Shop, possibly causing deterioration of that foundation and the supports of the house.

On Water Street, ditches along the road show signs of deep erosion and have caused trees to fall over as their support is washed away.





Loudoun County - Village of Waterford SWM Plan Development  
Community Flood Preparedness Fund (CFPF)  
Grant Application Package – Section A

# **Application Form for Grant and Loan Requests for All Categories**

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

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

---

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) 510090A

Name of Authorized Official and Title: George Govan - Director of Finance and Procurement

Signature of Authorized Official: \_\_\_\_\_

Mailing Address (1): P.O. Box 7000

Mailing Address (2): 1 Harrison Street

City: Leesburg State: Virginia Zip: 20177

Telephone Number: (703)777-0290 Cell Phone Number: (\_\_\_\_) \_\_\_\_\_

Email Address: george.govan@loudoun.gov

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

Mailing Address (1): \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone Number: (\_\_\_\_) \_\_\_\_\_ Cell Phone Number: (\_\_\_\_) \_\_\_\_\_

Email Address: \_\_\_\_\_

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

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

**Capacity Building and Planning Grants**

- Floodplain Staff Capacity.
- Resilience Plan Development
  - Revisions to existing resilience plans and modifications to existing comprehensive and hazard mitigation plans.
  - Resource assessments, planning, strategies, and development.
    - Policy management and/or development.
    - Stakeholder engagement and strategies.
- Other: \_\_\_\_\_

**Study Grants (Check All that Apply)**

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

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

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

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

**Nature-based solutions**

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

**Other Projects**

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

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

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

NFIP Community Identification Number (CID#) : 510090A

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 A, Zone X  
51107C0085E, 51107C0105E,

Flood Insurance Rate Map Number(s) (If Applicable): 51107C0095E, 51107C0115E

Total Cost of Project: \$120,000.00

Total Amount Requested \$60,000.00

Amount Requested as Grant \$60,000.00

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

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

For projects, planning, capacity building, and studies in low-income geographic areas: Are you requesting that match be waived?  Yes  No (*Not Applicable*)

**Additional Information for Loan Requests**

Requested Loan Security: *Not Applicable*

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

Desired loan term: *Not Applicable*

Since the date of your latest financial statements, did the applicant issue any new debt? *Not Applicable*  
(If yes, provide details)

Is there any pending or potential litigation by or against the applicant? *Not Applicable*

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

Attach FY2024 adopted budget or refer to website

*Not Applicable*

Attach current Capital Improvement Plan

*Not Applicable*

Attach adopted Financial Policies

*Not Applicable*

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

*Not Applicable*

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

*Not Applicable*



# **SECTION B – BUDGET DATA**

Project Budget Narrative and Scope of Services

Budget Narrative Template

Funding Request Authorization



# **Project Budget Narrative and Scope of Services**





# Project Budget Narrative and Scope of Services

A detailed budget narrative is included below and contains the required information outlined in the 2023 Funding Manual for the Virginia Community Flood Preparedness Fund. This section also includes the Kimley-Horn Scope of Services to develop a Stormwater Master Plan for the Village of Waterford.

**Estimated total project cost:** The total identified project cost to complete with Village of Waterford Stormwater Master Plan Development is \$120,000.00

**Amount of funds requested from the Fund:** The total amount of grant assistance sought from the Fund is \$60,000.00. A detailed breakdown of how this funding is proposed to be allocated is shown in this section as an attached Scope of Services.

**Amount of funds available:** The amount of funds available through this project's funding source is greater total estimated project cost of \$120,000.00. The following documentation is included in this section:

- Loudoun County FY2024 Adopted Budget – Village of Waterford Preserving the Landmark Infrastructure Improvements
- Loudoun County E-builder printout of C02500 fund showing CIP allocation and Unincumbered funds remaining.

**Authorization to request for funding:** Loudoun County internal Grant Application form that is signed by the County Budget Analyst, County Grants Coordinator, and County administration which authorizes the request for funding for this project has been included in this section.



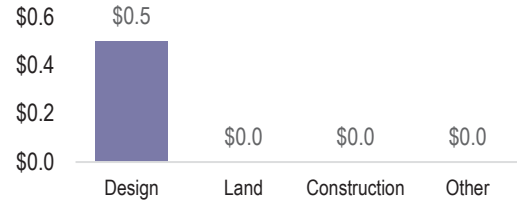
**Sidewalks, Traffic Signals, and Traffic Calming**

**Village of Waterford Preserving the Landmark Infrastructure Improvements**

**Details:**

**Project Number:** C02500  
**Election District (2022):** Catoctin  
**Election District (2011):** Catoctin  
**Project Type:** Various Improvements  
**Estimated Completion Year:** n/a  
**Referendum:** n/a

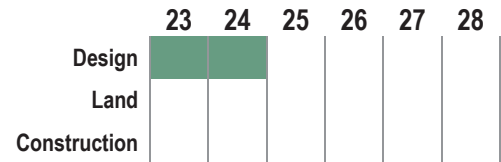
**Phase Costs in Millions**



**Background:**

This project provides initial funding for the preliminary programming and planning for methods to restore historic views, reduce and calm traffic, improve existing infrastructure, and add new utilities, all in the context of Waterford’s status as a National Historic Landmark. Improvements may include traffic calming, designated parking areas, continuous pedestrian pathways, pedestrian level lighting, undergrounding of utilities, correcting drainage and managing stormwater, and coordination with the Village’s potable water system.

**Project Phase Timeline by FY**



The funding for this project was originally programmed in the FY 2023 Adopted CIP project entitled *Waterford Traffic Calming*. During the FY 2024 CIP budget development process, the scope of work for the Traffic Calming project was incorporated into this project and the project scope was broadened. The original project number, C02500 has been retained for the broader Landmark Infrastructure Improvements project.

Capital (\$ in 1000s)	Prior Years	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	6 Year Total	Future FYs	Project Total
Professional Services	-	500	-	-	-	-	-	500	-	500
Land	-	-	-	-	-	-	-	-	429	429
Construction	-	-	-	-	-	-	-	-	1,260	1,260
Contingency	-	-	-	-	-	-	-	-	169	169
<b>Total – Costs</b>	-	<b>500</b>	-	-	-	-	-	<b>500</b>	<b>1,858</b>	<b>2,358</b>
Local Tax Funding	-	500	-	-	-	-	-	500	1,858	2,358
<b>Total – Funding Sources</b>	-	<b>500</b>	-	-	-	-	-	<b>500</b>	<b>1,858</b>	<b>2,358</b>



Cost Summary For C02500 - Village of Waterford Preserving the Landmark Infrastructure I

Cost Summary | Items Pending Approval | Unfinished Drafts | Data Entry

Financial Summary

Layout: Project Manager

Group By: Line Item

\* - Click on the amount to see more details

Line Item	Description	A Original Budget *	B Current Budget *	C Pending Budget Changes *	D Original Commitments	E Current Commitments *	F Pending Commitments *	G Pending Commit Changes *	H Actuals Received *	I Actuals Approved *	J Actuals Paid *	K E - B Current Over/(Under)
0160623	Appraisal and Surveying Services (including Escrow fees)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0160626	Court Svcs and Fees (Filing, Recording & Title Searches)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0163796	Land Acquisition Due Diligence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0163798	Purchase of Easements <\$10K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0170020	Purchase of Land >\$10K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0170030	Easements and Rights - Indefinite Life >\$10K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0170035	Easements and Rights - Useful Life >\$10K (Temporary ONLY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0260021	Architectural and Engineering Services	0.00	500,000.00	0.00	342,854.83	75,837.22	0.00	0.00	9,650.66	1,920.75	1,920.75	(424,162.78)
0260024	Legal and Special Litigation Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0260025	Management Consulting Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0260099	Professional Services (Wetland & Geo Studies, Cost Estim, Constructability, Value Engin, Commission)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0360628	Drafting Reproduction Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0360632	Moving, Storage and Delivery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Purchase of Svcs Other											
<b>Totals</b>		<b>0.00</b>	<b>500,000.00</b>	<b>0.00</b>	<b>342,854.83</b>	<b>75,837.22</b>	<b>0.00</b>	<b>0.00</b>	<b>9,650.66</b>	<b>1,920.75</b>	<b>1,920.75</b>	<b>(424,162.78)</b>

Recent Pages...

Project Menu

- > Details
- > Forms
- > Processes
- > Documents
- > Schedule
- > **Cost**
  - Cost Summary**
  - Funding Sources
  - Budget Details
  - Forecasts
  - Commitments
  - Actual Costs
  - Cash Flow
  - Other Cost Columns
- > Contacts
- > Calendar
- > Submittals

CIP Allocation

Unincumbered Funds

October 27, 2023

Marie Caraballo  
Asst. Design Program Manager  
Loudoun County  
Department of Transportation & Capital Infrastructure  
101 Blue Seal Dr., SE, Ste. 102  
P.O. Box 7500  
Leesburg, VA 20177

## **Re: Development of a Stormwater Management (SWM) Master Plan for the Village of Waterford**

Ms. Caraballo,

Kimley-Horn and Associates, Inc. (Kimley-Horn) is pleased to submit this task order proposal to the Loudoun County Department of Transportation and Capital Infrastructure (Loudoun County) to provide professional consulting services related to the development of a Stormwater Master Plan for the Village of Waterford, Virginia (Village). The language outlined below identifies our project understanding, scope of requested services, and accompanying fees related to the overall project.

### **PROJECT UNDERSTANDING**

This proposal summarizes the phases and tasks necessary to evaluate the existing hydrologic and hydraulic features of the Village of Waterford and determine conceptual solutions to help abate localized drainage issues and impacts due to large scale flooding. The Village and its historical areas are impacted by the South Fork of Catoctin Creek, as well as a lack of adequate stormwater management and drainage infrastructure. As part of this project, Kimley-Horn will utilize dynamic SWMM modeling to identify the inadequacies in the existing stormwater management system, and then model proposed solutions that will assist in developing strategies to prevent and mitigate damages from the riverine and localized flooding.

### **SCOPE OF SERVICES**

This proposal has been divided into six (6) tasks. Each task is outlined below with a summary defining the Scope of Services for each task. A lump sum cost to perform this work is provided (Attachment 1) and includes Kimley-Horn project management and coordination time.

1. Site Base Mapping, Project Due Diligence, and Site Visit
2. Hydrologic Analysis of the Village of Waterford
3. Development of a Village of Waterford Watershed Model
4. Development of a Village of Waterford Flood and Drainage Improvements Concept Plan
5. Development of a Village of Waterford Stormwater Master Plan Report
6. Meetings & Coordination

### **TASK 100 - SITE BASE MAPPING, PROJECT DUE DILIGENCE, AND SITE VISIT**

Kimley-Horn will develop Geographic Information Systems (GIS) base-maps illustrating the existing site conditions for the following Village study areas:

- South Fork of Catoctin Creek at Route 698 (Old Wheatland Road) crossing near the Waterford Mill
- South Fork of Catoctin Creek at Route 662 (Clarkes Gap Road) crossing at the Entrance to the Village of Waterford
- Lower Main Street and Bond Street Corridors
- Janney Street and Patrick Street Corridors
- Intersection of 2<sup>nd</sup> Street, Water Street, and Main Street

The base mapping will utilize readily available Loudoun County GIS, VFRIS, and FEMA data as to depict the impacts of the existing floodplain areas on pertinent infrastructure and private property. The base mapping will be used by Kimley-Horn to assist in site reconnaissance efforts and to supplement all modeling and study deliverables outlined in this Scope of Services.

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

- *Pending Village of Waterford Survey Data – Derived by Others (assumed delivery early 2024)*
- Loudoun County - Flood Insurance Study (FIS)
- FEMA relevant Flood Insurance Rate Maps (FIRMs)
- Any relevant studies or approved development plans within the project study areas (to be provided by the County)
- Available FEMA and County Hydraulic and/or Floodplain Models
- Available VDOT / Loudoun County Roadway/Drainage Infrastructure Plans for the project Study Areas
- Best available VFRIS, FEMA, State, and County GIS Shapefile Data and Aerial Imagery
- Available as-builts/electronic records of existing stormwater infrastructure.

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

## **TASK 200 – HYDROLOGIC ANALYSIS OF THE VILLAGE OF WATERFORD STUDY AREA WATERSHEDS.**

Kimley-Horn will determine hydrologic parameters of the following watersheds:

- South Fork of Catoctin Creek at Route 698 (Old Wheatland Road) stream crossing near the Waterford Mill
- South Fork of Catoctin Creek at Route 662 (Clarkes Gap Road) stream crossing at the Entrance to the Village of Waterford
- Lower Main Street and Bond Street Corridors
- Janney Street and Patrick Street Corridors
- Intersection of 2<sup>nd</sup> Street, Water Street, and Main Street

Kimley-Horn will determine existing study area hydrologic parameters such as drainage areas, Runoff Curve Numbers (RCNs), Times of Concentrations (Tc), Basin Slopes, as well as all required catchment area data needed to effectively model the study area existing hydrologic conditions. The hydrologic parameters will be derived from a compilation of the most readily available aerial landcover data, pending survey data, GIS Shapefile data, and soils data. The derived drainage basin hydrologic conditions will be utilized as model input parameters in Task 300 to determine each study area's flow characteristics for the 1-yr, 2-yr, 10-yr, and 100-yr storm events. All information derived in this task will be documented within the Village of Waterford Stormwater Master Plan Report (Task 500).

## **TASK 300 – DEVELOPMENT OF A VILLAGE OF WATERFORD WATERSHED MODEL**

### **Task 300A – Existing Conditions Watershed Modeling**

Kimley-Horn will build an existing conditions model of the Village study area watershed's using a dynamic SWMM modeling package that will be based on pending infrastructure survey data, County GIS information, lidar topography, and will be supplemented with all relevant plan and as-built data ascertained in Task 100. Kimley-Horn will develop basin flow networks that are indicative of the Villages stormwater and roadway infrastructure, topography, and building footprint and structural features. The existing model will be validated using publicly available rainfall gage data for recent storm events, and a comparison will be performed between the existing modeled inundation to historical observed inundation in the study areas.

The modeled results and data generated in this task will be used to determine limits and depths of localized and basin wide flooding along study area corridors. Existing inundation depths, velocities, flow spread, and flood limits will be derived as part of this analysis. Kimley-Horn will develop and document both graphical and tabular results for the existing conditions modeling. These values will provide a baseline comparison to assess proposed conceptual design implementation scenarios. All information derived in this subtask will be documented within the Village of Waterford Stormwater Master Plan Report (Task 500).

### **Task 300B – Proposed Improvements Watershed Modeling**

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

Kimley-Horn will model up to two (2) conceptual solutions at each of the five (5) study areas identified in Task 100, for a total of ten (10) modeled solutions provided. After assessing the viability and potential success of the conceptual infrastructure changes within the study corridors, Kimley-Horn will run revised model scenarios for the 1, 2, 10, and 100-yr storm events to compare to the existing conditions modeling as to quantify the effect of the proposed improvements on the localized and large-scale flooding limits within the Village study areas. The graphical and tabular information generated from this task will be included in the Village of Waterford Stormwater Master Plan Report (Task 500).

### **Task 400 - Development of a Village of Waterford Flood and Drainage Improvements Concept Plan**

Based on the results determined through the Watershed Modeling (Task 300), Kimley-Horn and the County will agree upon the best five (5) conceptual solutions to evaluate further. From this, Kimley-Horn will develop five (5) - 24x36 AutoCAD conceptual exhibits that will graphically depict locations of potential flood and drainage improvements within the Village study areas. Proposed conceptual improvements will include, but are not limited to the following:

- Infrastructure based improvements
  - Additional pipe locations, inlet placement, junction boxes, etc.
- Natural based solutions
  - Stream and floodplain restoration techniques, outfall channel restoration, etc.
- Preservation and creation of open space and focus on permanent conservation of lands having flood resilience value.

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

### **Task 500 – Village of Waterford Stormwater Master Plan Report**

Kimley-Horn will develop a Village of Waterford Stormwater Master Plan Report outlining the information derived in tasks 100 - 400. Study graphics, tabular summaries, numerical analysis, and conceptual level designs created in all previous tasks will be included in the final report. Recommendations on future drainage basin stormwater management improvements, future storm sewer designs, as well as comprehensive drainage and floodplain improvement implementation scenarios for the Study Area will be included with the report.

### **Task 600 – Meetings & Coordination**

Kimley-Horn staff will be available for up to two (2) project coordination meetings to discuss the project. In addition, Kimley-Horn staff will participate in calls to discuss the project with County staff. If additional meetings and coordination activities are requested, Kimley-Horn will prepare a separate Scope of Services and cost estimate for client approval prior to proceeding with the additional work.

## **DELIVERABLES**

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

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

## OVERALL PROJECT ASSUMPTIONS

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

- All pending survey data will be provided to Kimley-Horn prior to March 31<sup>st</sup>, 2024 to facilitate completion of this study by December 31<sup>st</sup>, 2024.
- Accuracy and precision of survey data and previous studies provided by others is solely on the firm that derived the studies. Kimley-Horn will review all data provided by the County with regards to the Masterplan Study Area but assumes no responsibility for information outlined in the studies developed by others.
- All previous project information developed by others will be provided by the County to Kimley-Horn in a timely manner to accommodate anticipated project schedule.
- The flood studies and analyses proposed in this Scope of Services are intended as a planning level and will not constitute a formal FEMA floodplain study. As such this information and data will not be stamped and sealed by a Virginia Professional Engineer (PE).
- All analyses and studies developed in this Scope of Services will be based on limited survey information, and as such, the information derived will be considered “for information purposes only”.
- The Conceptual Design Exhibits referenced in this Scope of Services will be limited in terms of engineering design and analysis. As such, they will be not stamped by a licensed Virginia Professional Engineer and labeled as “Not for Construction Purposes”.
- The County will provide site access permission to Kimley-Horn, for conducting all necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Readily available County GIS shapefile and geodatabase information will be used to supplement this study, as needed.
- The County will provide all coordination with Inter-County departments with regards to this project.
- This proposal and the accompanying cost estimate are valid for a period of 90 days and will expire if not accepted within that timeframe.

## OVERALL PROJECT EXCLUSIONS

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

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



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

## **SCHEDULE**

The tasks referenced in this scope will be coordinated with County Staff. Meetings, action items, and deliverables will be tracked on a monthly basis and reported to the County with a monthly progress report for documentation of services provided. Assuming Kimley-Horn receives a notice to proceed by January 1, 2024, Kimley-Horn anticipates completion of the Scope of Services outlined above by December 31, 2024. A detailed schedule will be developed for the City outlining project workflow and deliverables after contract execution.

## **FEE AND BILLING**

Kimley-Horn will provide the following Scope of Services for a lump sum fee of **\$120,000.00**. A detailed breakdown (by task) of Kimley-Horn's fee estimate is provided in Attachment 1. Please note that fees will be invoiced monthly for services performed and payment will be due within 25 days of receipt of invoices related to this project.

## **CLOSURE**

The work described with this proposal will be completed in accordance with the terms and conditions of Contract RFQ-585 with the Loudoun County Department of Transportation and Capital Infrastructure (DTCI). We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

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



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

**ATTACHMENT 1 – KIMLEY HORN FEE BREAKDOWN**

**Loudoun County, Virginia**  
**Development of a Stormwater Management (SWM) Master Plan for the Village of Waterford**  
**November 3, 2023**  
**Lump Sum Cost Estimate**

		Loaded Hourly Rate	\$319.90	\$240.46	\$234.78	\$191.07	\$158.98	\$133.26	\$112.67					10%	
Task	Description	Program Manager	Project Manager	Sr. Engineer / Planner	Engineer / Planner II	Engineer / Planner I	Technical Analyst II	Technical Analyst I	Budget Total Hours	Budget Labor Cost	Reimbursable Expenses	Subconsultant Services	Subconsultant Mark-up	Budget Total Cost	
100	Site Base Mapping, Project Due Diligence, and Site Visit		4		9		24		37	\$5,879.71	\$65.17	\$0.00	\$0.00	\$5,944.88	
200	Hydrologic Analysis of the Village of Waterford		14		20		56		90	\$14,650.40	\$0.00	\$0.00	\$0.00	\$14,650.40	
300	Development of a Village of Waterford Watershed Model		48		128		80		256	\$46,659.84	\$0.00	\$0.00	\$0.00	\$46,659.84	
400	Development of a Village of Waterford Flood and Drainage Improvements Concept Plan		28		50		112		190	\$31,211.50	\$0.00	\$0.00	\$0.00	\$31,211.50	
500	Development of a Village of Waterford Stormwater Master Plan Report		24		18		51		93	\$16,006.56	\$0.00	\$0.00	\$0.00	\$16,006.56	
600	Meetings & Coordination		16		6		4		26	\$5,526.82	\$0.00	\$0.00	\$0.00	\$5,526.82	
<b>TOTAL</b>		<b>0</b>	<b>134</b>	<b>0</b>	<b>231</b>	<b>0</b>	<b>327</b>	<b>0</b>	<b>692</b>	<b>\$119,934.83</b>	<b>\$65.17</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$120,000.00</b>	

\* Rates (Year 5) per Loudoun County RFQ-585



# Budget Narrative Template

## Appendix B: Budget Narrative Template

<p>Applicant Name: <b>Loudoun County DTCI</b>            Community Flood Preparedness Fund &amp;            Resilient Virginia Revolving Loan Fund            Detailed Budget Narrative            Period of Performance: <b>January 1, 2024</b> through <b>December 31, 2024</b>            Submission Date: <b>November 10, 2024</b></p>									
Grand Total State Funding Request									<b>\$ 60,000.00</b>
Grand Total Local Share of Project									<b>\$60,000.00</b>
Federal Funding (if applicable)									\$
Project Grand Total									<b>\$120,000.00</b>
Locality Cost Match									<b>% 50</b>
Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						<b>\$60,000.00</b>			<b>\$60,000.00</b>
State Share						<b>\$60,000.00</b>			<b>\$60,000.00</b>
Pre-Award/Startup									
Maintenance									
<b>Total</b>	\$	\$	\$	\$	\$	<b>\$120,000.00</b>	\$	\$	<b>\$120,000.00</b>



# Funding Request Authorization

# Grant Application Summary Form

## Basic Information

Name of Grant: \_\_\_\_\_ Funding Agency: \_\_\_\_\_  
Department: \_\_\_\_\_

Department Director Signature : \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Name of grant program manager/staff contact: \_\_\_\_\_

Amount of grant funding request: \$ \_\_\_\_\_ Application Due Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Grantor:  Federal  State  Private/Foundation  Grant Type:  New  Continuation

Local Match Required?  Yes  No

If yes, Amount/Type of Local Match: \_\_\_\_\_ cash  
\_\_\_\_\_ in-kind

If yes, are Local match funds available in existing department appropriations:  Yes  No

If yes, what is the funding source and fiscal year(s)? \_\_\_\_\_

If no, what is the plan to meet the match requirement? \_\_\_\_\_

Describe the authorized uses of funds: (Salary & benefits, Supplies, Contractual Services, Travel, Other.)  
\_\_\_\_\_

Grant time period: \_\_\_\_/\_\_\_\_/\_\_\_\_ to \_\_\_\_/\_\_\_\_/\_\_\_\_

Are there any requirements to renew beyond this time?  Yes  No

If yes, what are they and how will they be funded? \_\_\_\_\_

Are there any special conditions or provisions related to "maintenance of effort"? (Conditions or provisions that require the County to maintain this program after grantor funding is no longer available?)  Yes  No

If yes, what are they? \_\_\_\_\_

Are there any other special conditions or provisions for this funding?  Yes  No

If yes, what are they? \_\_\_\_\_

What is the number of FTE funded through the grant? \_\_\_\_\_

What are the preliminary job classifications? \_\_\_\_\_

Please add any additional information or comments here: \_\_\_\_\_

# Grant Application Summary Form

## Grant Program Information

**Brief narrative of program to be provided using grant funds:** \_\_\_\_\_

Grant Funds will be used to develop a Flood and Drainage Study for the Village of Waterford to identify flooding issues and identify possible solutions on how to address these issues.

**Is this grant an expansion of an existing program?**  Yes  No

If yes, what cost center(s) are associated? \_\_\_\_\_

**If this is a new grant, identify the program code/user code where the new cost center will be setup.**

\_\_\_\_\_

**How does this program fit in the context of your department's management plan?** \_\_\_\_\_

This grant will help fulfill the goal of the CTP which is to provide a safe, affordable, convenient, efficient and environmentally sound multi-modal transportation system to serve Loudoun County.

**Is this (or a similar) program provided by any other County or school department?**  Yes  No

If yes, by who? \_\_\_\_\_

**Please add any additional information or comments here:** \_\_\_\_\_

## Impact on and Need for Resources

**How will the grant program manager's workload be affected by this grant?** \_\_\_\_\_

This grant will be managed by the DTCI Special Projects Manager and Asst. Design Program Manager and is anticipated to encumber approximately 15% of those FTE's time.

**What staff in other departments will be needed to implement or support this program?** \_\_\_\_\_

Have you contacted those departments to discuss this grant?  Yes  No

**Does the grant involve the receipt or purchase of equipment and/or will any new office space, office space reconfiguration, or office furniture/equipment be required (include phones/phone lines, computer hardware/software, use of county vehicle)?**  Yes  No

If yes, describe: \_\_\_\_\_

**As a result of the grant, will new staff be hired?**  Yes  No

If yes, what new or additional office equipment or furniture is needed? (Include phones, email address, computer hardware/software, reconfiguring of existing computer hardware, etc.) \_\_\_\_\_

**Will any computer hardware or software be supplied through the grant?**  Yes  No

If yes, will the hardware/software be updated/replaced (using grant funds) as needed or required?  Yes  No

**Please add any additional information or comments here:** \_\_\_\_\_



# Grant Application Summary Form

---

**Do not write in this space**

**Budget Analyst Recommendation:**  Approve  Disapprove

**Budget Analyst Comments:** \_\_\_\_\_

**Budget Analyst Signature:** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Grants Coordinator Recommendation:**  Approve  Disapprove

**Grants Coordinator Comments:** \_\_\_\_\_

**Grants Coordinator Signature:** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**County Administrator (or designee) Decision:**  Approve  Disapprove

**County Administrator (or designee) Signature:** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_



# **SECTION C - CHECKLIST REQUIREMENTS**

Completed 2023 CFPF Funding Manual Checklist

Detailed Map(s) of Project Area

FIRMette of the Project Area(s)

Historic Flood Damage Data / Images

Copy of the Loudoun County Floodplain Ordinance

Loudoun County 2019 Comprehensive Plan

Social Vulnerability Index Score(s) for the Project Areas



# Completed 2023 CFPF Funding Manual Checklist

## Appendix C: Checklist All Categories

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

Virginia Department of Conservation and Recreation

Community Flood Preparedness Fund Grant Program

---

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

*Included in Section C Appendix*

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

*Included in Section C Appendix*

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

*Included in Section C Appendix*

A link to or a copy of the current floodplain ordinance

*Included in Section C Appendix*

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

*Not Applicable for this Project*

A link to or a copy of the current comprehensive plan

*Included in Section C Appendix*

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

*Included in Section C Appendix*

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

*Not Applicable for this Project*

Letter of support from impacted stakeholders

*Included in Section A Appendix*

Budget Narrative

*Included in Section B Appendix*

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

*Not Applicable for this Project*

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

*Included in Section B Appendix*

Signed pledge agreement from each contributing organization

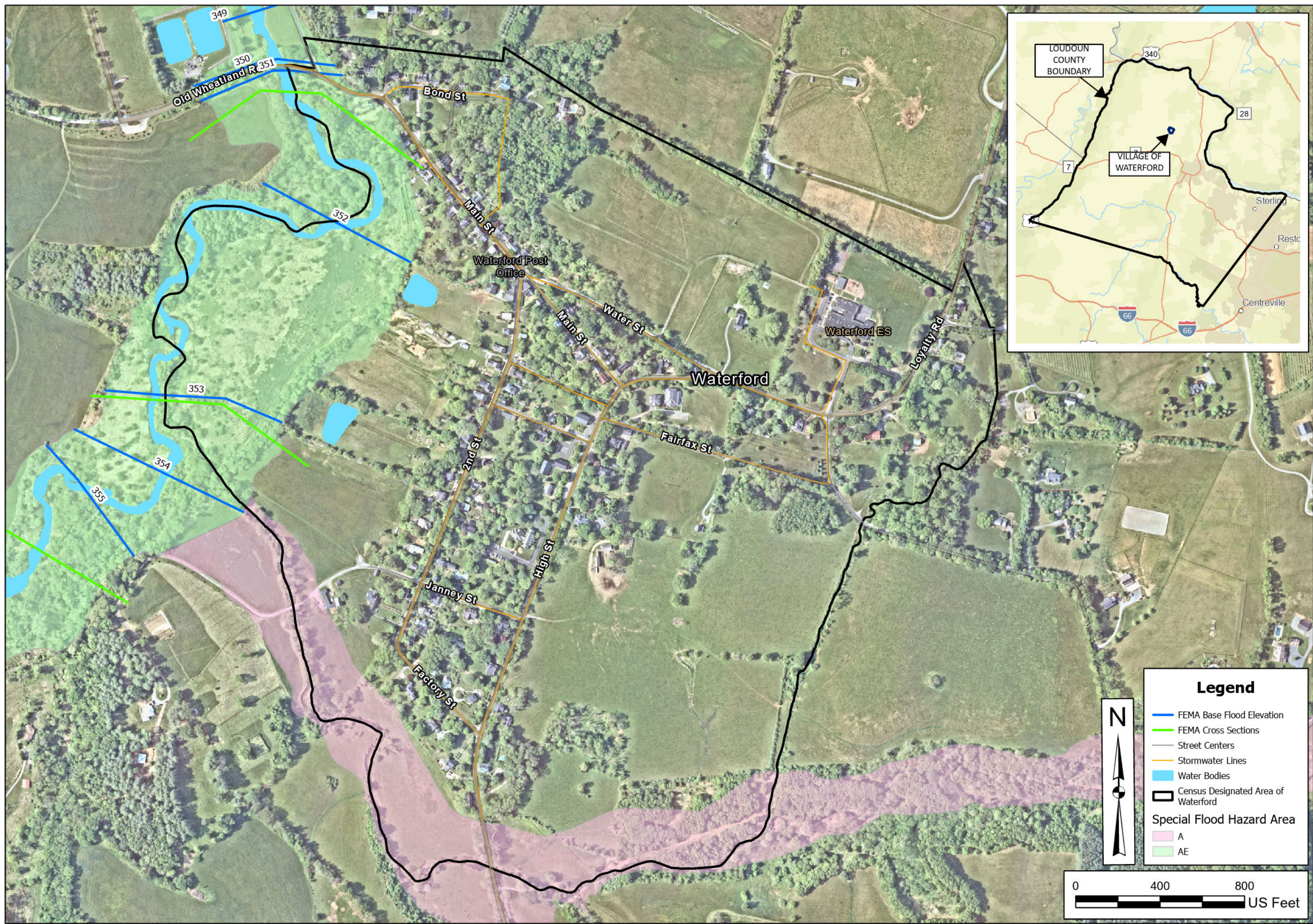
*Not Applicable for this Project*

Detailed budget and narrative for all costs

*Included in Section B Appendix - (Kimley-Horn Scope of Services to develop a Stormwater Master Plan for the Village of Waterford)*



# Detailed Map(s) of Project Area



**DATE**  
11/2/2023

**DRAWN BY**  
MNP

**CHECKED BY**  
JJD

**VILLAGE OF WATERFORD  
HISTORIC DISTRICT OVERVIEW**

PREPARED FOR LOUDOUN COUNTY  
DEPARTMENT OF TRANSPORTATION AND CAPITAL INFRASTRUCTURE

**SCALE**  
1" = 400'

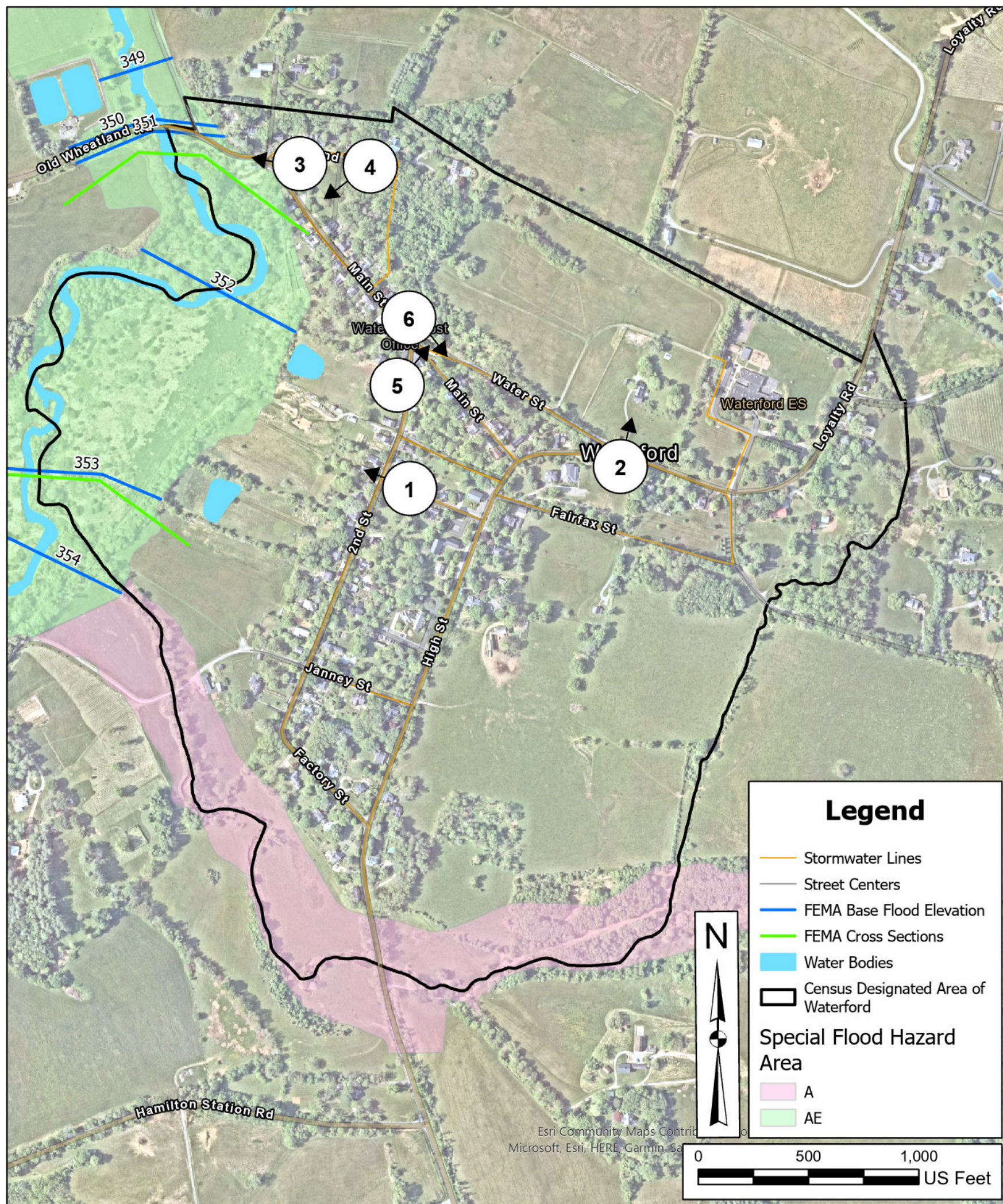
**PROJECT NUMBER**  
N/A

**SHEET NUMBER**  
APPENDIX C

**Legend**

- FEMA Base Flood Elevation
- FEMA Cross Sections
- Street Centers
- Stormwater Lines
- Water Bodies
- Census Designated Area of Waterford
- Special Flood Hazard Area**
- A
- AE





**PHOTO 1**  
SANDBAG IMPLEMENTATION ON SECOND ST.



**PHOTO 2**  
FLOODING ON WATER ST.



**PHOTO 3**  
CATOCTIN CREEK FLOOD IMPACTS ON THE WATERFORD MILL



**PHOTO 4**  
FLOODING AT LOWER MAIN STREET AND BOND STREET

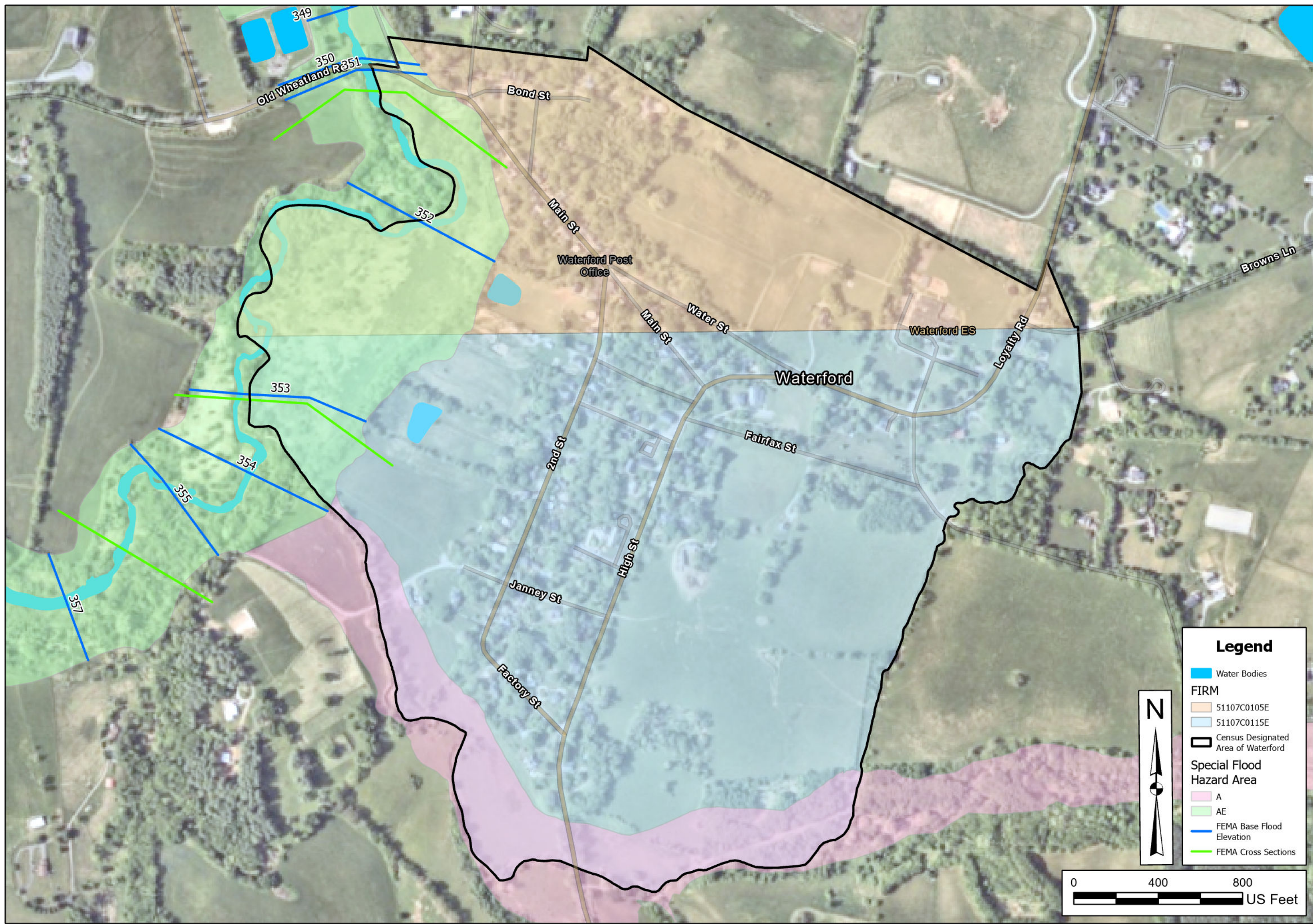


**PHOTO 5**  
INADEQUATE STORMWATER INFRASTRUCTURE



**PHOTO 6**  
INADEQUATE STORMWATER INFRASTRUCTURE





<b>DATE</b>	11/2/2023
<b>DRAWN BY</b>	MNP
<b>CHECKED BY</b>	JJD

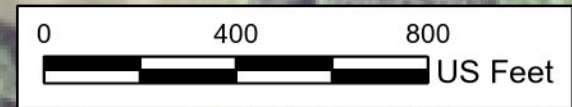
**VILLAGE OF WATERFORD  
 FEMA FLOOD PLAIN MAP**

PREPARED FOR LOUDOUN COUNTY  
 DEPARTMENT OF TRANSPORTATION AND CAPITAL INFRASTRUCTURE

<b>SCALE</b>	1" = 400'
<b>PROJECT NUMBER</b>	N/A
<b>SHEET NUMBER</b>	APPENDIX C

**Legend**

- Water Bodies
- FIRM**
- 51107C0115E
- 51107C0105E
- Census Designated Area of Waterford
- Special Flood Hazard Area**
- A
- AE
- FEMA Base Flood Elevation
- FEMA Cross Sections





# **FIRMette of the Project Area(s)**

# National Flood Hazard Layer FIRMette



77°36'48"W 39°11'27"N

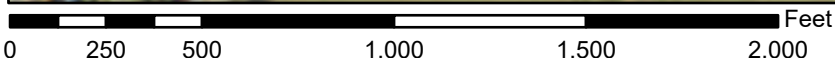


## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
		Area of Undetermined Flood Hazard <i>Zone D</i>
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



1:6,000

77°36'10"W 39°10'59"N

Basemap Imagery Source: USGS National Map 2023

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

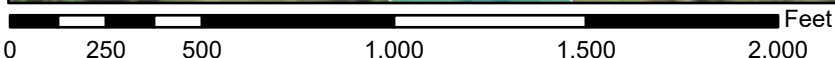
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/20/2023 at 1:08 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# National Flood Hazard Layer FIRMMette



77°37'7"W 39°11'28"N



1:6,000

77°36'29"W 39°11'N

Basemap Imagery Source: USGS National Map 2023

### Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

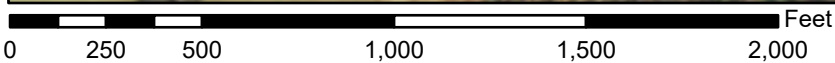
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/20/2023 at 1:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# National Flood Hazard Layer FIRMMette



77°37'4"W 39°11'N



1:6,000

77°36'27"W 39°10'32"N

Basemap Imagery Source: USGS National Map 2023

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

<b>SPECIAL FLOOD HAZARD AREAS</b>		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
<b>OTHER AREAS OF FLOOD HAZARD</b>		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
<b>OTHER AREAS</b>		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
<b>GENERAL STRUCTURES</b>		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
<b>OTHER FEATURES</b>		20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
<b>MAP PANELS</b>		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/20/2023 at 1:20 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



# Historic Flood Damage Data / Images



Photo 1. South Fork of Catocin Creek flood impacts on the Waterford Mill.



Photo 2. Flooding at Lower Main Street and Bond Street.



Photo 3. Flooding on Water Street.



Photo 4. Sandbag Implementation on Second Street.





Photo 5. Sandbag Implementation and inadequate drainage infrastructure at the intersection of 2<sup>nd</sup> Street, Water Street, and Main Street.



Photo 6. Lack of Stormwater Drainage Infrastructure on Main Street / Erosion.



Photo 7. Lower Main Street Drainage Pattern and lack of drainage infrastructure.



Photo 8. Elevation difference of High Street

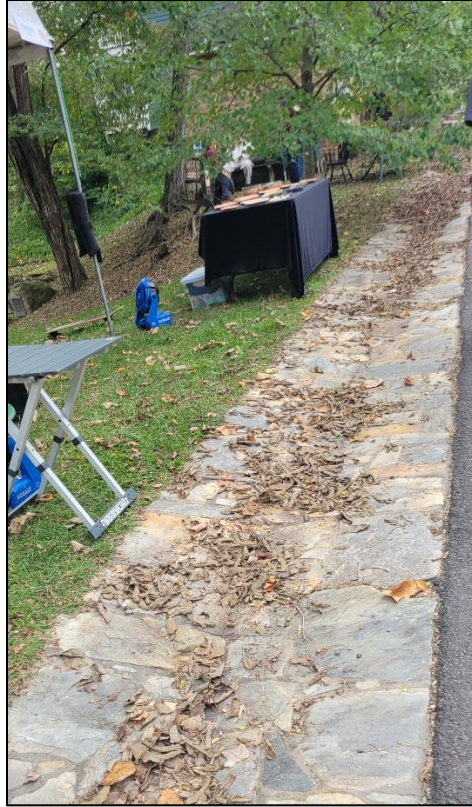


Photo 9. Inadequate Stormwater Drainage Infrastructure

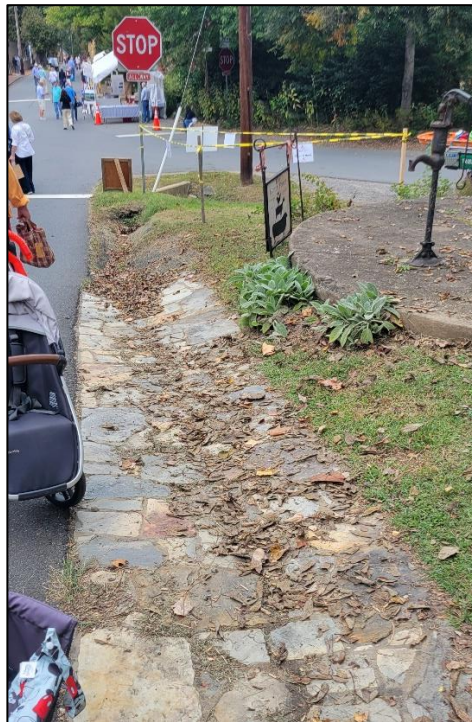


Photo 10. Inadequate Stormwater Drainage Infrastructure



Photo 11. Inadequate Stormwater Drainage Infrastructure

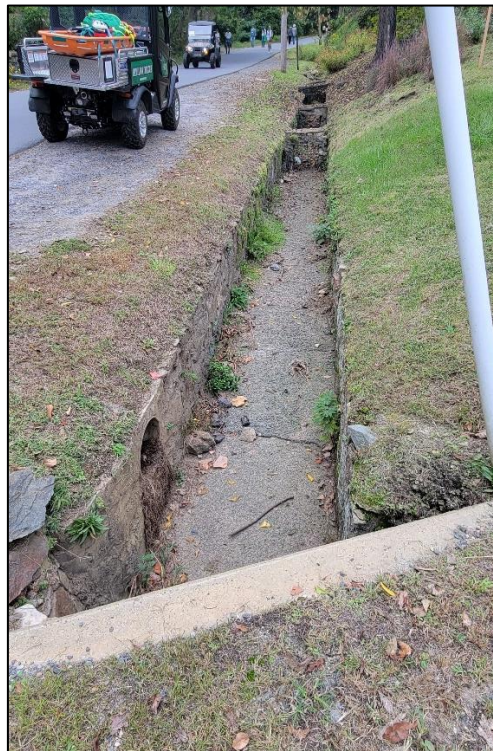


Photo 12. Inadequate Stormwater Drainage Infrastructure



Photo 13.



Loudoun County - Village of Waterford SWM Plan Development  
Community Flood Preparedness Fund (CFPF)  
Grant Application Package – Section C

# **Copy of the Loudoun County Floodplain Ordinance**

## Section 4-1500

## FOD - Floodplain Overlay District

### 4-1501

**Purpose and Intent.** The purpose of these provisions is to conserve the natural state of watercourses and watersheds and to prevent: the loss of life and property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by (1) regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies; (2) restricting or prohibiting certain uses, activities, and development from locating within areas subject to flooding; (3) requiring all those uses, activities, and developments that do occur in areas susceptible to flooding to be protected and/or flood-proofed against flooding and flood damage; and ; (4) preventing individuals from using land and erecting structures which are unsuited for intended purposes because of flood hazards. These provisions shall apply to all privately and publicly owned lands within the jurisdiction of the County of Loudoun and identified as being located within the Floodplain Overlay District (FOD). Only those uses set forth in Section 4-1505 and 4-1506 shall be permitted or special exception uses within the FOD, and land so encumbered may be used in a manner permitted in the underlying zoning district only if and to the extent such use is also permitted in the FOD.

The degree of flood protection sought by Section 4-1500 is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. Section 4-1500 does not imply that property outside the FOD or land uses permitted within the FOD will be free from flooding or flood damages. Section 4-1500 shall not create liability on the part of Loudoun County or any officer or employee thereof for any flood damages that result from reliance on Section 4-1500 or any administrative decision lawfully made thereunder.

### 4-1502

**Authority.** Authority for these provisions includes:

- (A) Flood Damage Reduction Act, Va. Code Sections 10.1-600 et seq.
- (B) Va. Code Sections 15.2-2200 through 15.2-2329 (Planning, Subdivision of Land and Zoning).
- (C) Soil Conservation Districts Law, Va. Code Sections 10.1-500 et seq.
- (D) Erosion and Sediment Control Law, Va. Code Section 62.1-44.15:51 et seq.
- (E) Potomac River Basin Compact, Va. Code Section 28.2-1001.
- (F) National Flood Insurance Act of 1968, 42 U.S.C. 4001 et seq., as amended by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004.

(G) Code of Federal Regulations, Title 44, Section 59.1-70.9

**4-1503**

**Definitions.** The words and phrases defined in this subsection shall have the following meanings when used in Section 4-1500.

- (A) **Alteration.** A development action which will change the cross section of the floodplain and will increase either the erosive velocity or height of floodwaters either on-site or off-site. Alterations include, but are not limited to, land disturbing activities.
- (B) **Base Flood.** The flood having a one percent (1%) chance of being equaled or exceeded in any given year. Also known as the 100-year flood.
- (C) **Base flood elevation.** The water surface elevations of the base flood. The water surface elevation of the base flood is calculated based on the datum specified on Loudoun County's Flood Insurance Rate Map.
- (D) **Basement.** That portion of a building having its floor below ground level on all sides.
- (E) **Conditional Letter of Map Revision (CLOMR).** A formal review and written comment from FEMA on a proposed project that would, upon construction, cause an increase in base flood elevation. Upon completion of the construction of such project, a Letter of Map Revision (LOMR) issued by FEMA, determining that the increase was warranted, shall be required.
- (F) **Cross section.** Shape and dimensions of a channel and valley of the floodplain perpendicular to the line of flow.
- (G) **Development.** Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.
- (H) **Elevated building.** A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).
- (I) **Flood or Flooding.**
  - (1) A general or temporary condition of partial or complete inundation of normally dry land areas from:
    - (a) the overflow of inland waters; or,
    - (b) the unusual and rapid accumulation or runoff of surface waters from any source.
    - (c) mudflows which are proximately caused by flooding as defined in paragraph (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of



normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

- (2) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as a flash flood, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1(a) of this definition.
- (J) **Flood Insurance Rate Map (FIRM).** The official map of Loudoun County on which the Federal Emergency Management Agency (FEMA) has delineated areas in the floodplain subject to inundation of the base flood and the risk premium zones based on the technical data in the Flood Insurance Study. The FIRM that has been made available digitally is called the Digital Flood Insurance Rate Map (DFIRM).
- (K) **Flood Insurance Study (FIS).** A report by FEMA that examines, evaluates and determines flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudflow and/or flood-related erosion hazards.
- (L) **Floodplain.** Any land area susceptible to being inundated by water from the base flood and having a drainage area greater than one hundred (100) acres. For purposes of regulation under this Ordinance, a distinction is made between the Major Floodplain and Minor Floodplain. Major floodplain shall correspond to Zones AE and A as shown on the FIRM, as may be subsequently revised or amended by FEMA, and is considered to be the Special Flood Hazard Area by FEMA. All watersheds draining greater than 640 acres shall be considered Major Floodplain. Minor Floodplain shall correspond to watersheds of 640 acres or less that are not designated as Zone AE or A.
- (M) **Floodproofing.** Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.
- (N) **Floodway.** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without any cumulative increase the base flood elevation. Floodways are included within, and regulated as, FOD (Major Floodplain). Floodways are not shown on the FIRM but are included within the Special Flood Hazard Area designated on the FIRM, which is regulated as FOD (Major Floodplain).
- (O) **Freeboard.** A factor of safety expressed in feet above a flood level for purposes of floodplain management. "Freeboard" compensates for the many unknown factors that contribute to flood heights greater than the

height calculated for Base Flood, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

- (P) **Historic structure.** Any structure that is:
- (1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
  - (2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
  - (3) Individually listed on the Virginia Landmarks Register; or,
  - (4) Individually listed on the Loudoun County Register of Heritage Resources.
- (Q) **Lowest floor.** The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Code of Federal Regulations 44CFR §60.3.
- (R) **Manufactured Home.** A structure constructed and subject to federal regulation, which is transportable in one or more sections; is built on a permanent chassis; is designed to be used as a single-family dwelling, with or without a permanent foundation, when connected to utilities. The term "manufactured home" also includes recreational vehicles placed on a site for greater than 180 consecutive days whether connected to utilities or not.
- (S) **New construction.** Structures for which the start of construction commenced on or after January 5, 1978. All such structures shall comply with the Loudoun County regulations in effect at the time of construction. Any improvement(s) to a structure shall comply with the Loudoun County regulations in effect at the time of construction of the improvement(s).
- (T) **Recreational Vehicle.** A vehicle which is
- (1) built on a single chassis;
  - (2) 400 square feet or less when measured at the largest horizontal projection;
  - (3) designed to be self-propelled or permanently towable by a light duty truck; and

- (4) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational camping, travel, or seasonal use.
- (U) **Road, Crossing of the Floodplain or Road Crossing.** Any public road, private road or driveway traversing a floodplain generally perpendicular to the flow of the drainageway.
- (V) **Special Flood Hazard Area (SFHA).** The land in the floodplain subject to a one (1%) percent or greater chance of being flooded in any given year. This area corresponds to where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and includes Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V as shown on the FIRM.
- (W) **Start of construction.** Means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.
- (X) **Stormwater Management Improvements.** Surface or subsurface drainage improvements, storm sewers, detention and retention ponds and other such improvements as required by the Facilities Standards Manual (FSM), the Loudoun County Stormwater Management Ordinance, Chapter 1096 of the Codified Ordinances of Loudoun County, or the Loudoun County Erosion and Sediment Control Ordinance and Plan, Chapter 1220 of the Codified Ordinances of Loudoun County.
- (Y) **Stream Corridor.** Includes the stream and extends in cross section from the channel's bankfull level towards the upland (perpendicular to the direction of streamflow) to a point on the landscape where channel-related surface and/or soil moisture no longer influence the plant community.
- (Z) **Stream Restoration.** Converting an unstable, altered, or degraded stream corridor, including adjacent riparian area and flood-prone areas, to its natural stable condition considering recent and future watershed conditions.

- (AA) **Structure.** An assembly of materials forming a construction for occupancy or use including, among others, buildings, stadiums, gospel and circus tents, platforms, stagings, observation towers, telecommunications towers, radio and TV broadcasting towers, water tanks, trestles, piers, open sheds, coal bins, shelters, walls, power line towers, pipelines, railroad tracks, manufactured homes, and gas or liquid storage tanks that are principally above ground.
- (BB) **Substantial damage.** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred.
- (CC) **Substantial improvement.** Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure before the start of construction of the improvement. This term includes structures which have incurred flood related damages on two (2) occasions in which the cost of the repair on the average equaled or exceeded twenty-five percent (25%) of the market value of the structure at the time of each such flood event or substantial damage regardless of the actual repair work performed. The term does not, however, include either:
- (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
  - (2) Any altering, repair or rehabilitation of a historic structure, provided that the altering, repair or rehabilitation will not preclude the structure's continued designation as a historic structure. Historic structures undergoing altering, repair or rehabilitation that would constitute a substantial improvement as defined above, must comply with all requirements of Section 4-1500 that do not preclude the structure's continued designation as a historic structure. Documentation that a specific requirement of Section 4-1500 will cause removal of the structure from the National Register of Historic Places or the Virginia Landmarks Register must be obtained from the Secretary of the Interior or the State Historic Preservation Officer. Any exemption from the requirements of Section 4-1500 will be the minimum necessary to preserve the historic character and design of the structure.
- (DD) **Utility Lines in the Floodplain.** Storm sewers, sanitary sewers, water lines and similar lines running generally parallel and perpendicular to the flow of the drainageway; and other public utility lines traversing a floodplain generally perpendicular to the flow of the drainageway.
- (EE) **Violation.** The failure of a structure or other development to be fully compliant with this Section 4-1500. A structure or other development

without a FEMA approved Elevation Certificate, other certifications, or other evidence of compliance required in this Section 4-1500 shall be presumed to be in violation until such time as that documentation is provided.

- (FF) **Watercourse.** A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial damage resulting from flooding may occur.

**4-1504 Administration.**

- (A) **Designation of Floodplain Administrator.** The Zoning Administrator, or his/her designee, shall administer and implement these regulations and is referred to herein as the Floodplain Administrator.
- (B) **Duties and Responsibilities of the Floodplain Administrator.** The Floodplain Administrator shall:
  - (1) Review all applications for development located within the FOD.
  - (2) Interpret FOD boundaries in accordance with Section 6-407 and provide available base flood elevation and flood hazard information.
  - (3) Review applications for development to determine whether proposed activities will be reasonably safe from flooding and meet the requirements of Section 4-1500.
  - (4) Review applications for reconstruction, rehabilitation, addition or other improvement of a structure to determine whether such proposed activities constitute substantial improvements.
  - (5) Review applications for development to determine whether all necessary permits have been obtained from the Federal, State or local agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair, or altering of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any altering of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the State.
  - (6) Verify that applicants proposing to alter a watercourse have notified affected adjacent towns, cities, county or state government, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies (Virginia Department of Environmental Quality, United States Army Corps of Engineers) and have submitted copies of such notifications to FEMA.

- (7) Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with Section 4-1500 or to determine if non-compliance has occurred or violations have been committed.
- (8) Review submitted FEMA Elevation Certificate applications and require incomplete or deficient applications to be corrected.
- (9) Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including Floodplain Studies and Floodplain Alterations approved in accordance with the FSM, within six (6) months after such data and information becomes available if the analyses indicate changes in base flood elevations.
- (10) Maintain and permanently retain records that are necessary for the administration of the FOD, including:
  - (a) Flood Insurance Studies, Flood Insurance Rate Maps (including historic studies and maps and current effective studies and maps), and Letters of Map Change; and
  - (b) Documentation supporting approval or denial of development permits, Elevation Certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, other required design certifications, variations pursuant to Section 4-1511, and records of enforcement actions taken to correct violations of these regulations.
- (11) Enforce the provisions of these regulations, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.
- (12) Advise the Board of Supervisors regarding the intent of these regulations and, for each application for a variation pursuant to Section 4-1511, prepare a staff report and recommendation.
- (13) Administer the requirements related to proposed work on existing buildings:
  - (a) Make determinations as to whether buildings and structures that are located in FOD (Major Floodplain only) and that are damaged by any cause have been substantially damaged.
  - (b) Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct such damaged structures; and prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective

measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

- (14) Undertake, as determined appropriate by the Floodplain Administrator due to the circumstances, other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to development permit requests and repair of damaged structures; coordinating with other Federal, State, and local agencies to assist with substantial damage determinations; providing owners of damaged structures information related to the proper repair of damaged structures in FOD; and provide property owners with information necessary to file claims for Increased Cost of Compliance coverage under the National Flood Insurance Program (NFIP) flood insurance policies.
  - (15) Notify FEMA when the corporate boundaries of the County have been modified and:
    - (a) Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to Section 4-1500 has either been assumed or relinquished through annexation or otherwise; and
    - (b) For any new area for which the authority to regulate pursuant to this Section 4-1500 has been assumed, prepare necessary amendments to the Zoning Map and appropriate requirements, and submit such amendments to the Board of Supervisors for adoption. A copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.
  - (16) Upon the request of FEMA, complete and submit information regarding the number of buildings in the FOD (Major Floodplain only), number of approved permits for development in the FOD (Major Floodplain only), number of approved variations pursuant to Section 4-1511. Any variations that are approved shall be noted in the annual or biennial report submitted to FEMA's Federal Insurance Administrator.
  - (17) Serve as a referral agent on all legislative land development applications.
- (C) **Delineation of the FOD.** The original basis for the delineation of the FOD shall be the floodplain as shown on the Flood Insurance Study (FIS) and the Flood Insurance Rate Map (FIRM) for the County of Loudoun prepared by FEMA, Federal Insurance Administration, dated February 17, 2017. The boundaries of the floodplain and FOD may change based on

information submitted in accordance with this Chapter, and/or subsequent revisions or amendments to the FIS and FIRM approved by FEMA.

**4-1505**

**Permitted Uses.** The following uses shall be permitted within the FOD provided such uses conform with Section 5-1000. Uses allowed in the underlying district shall be prohibited to the extent such uses are not permitted, or special exception uses in the FOD. Where any uses, structures or improvements will result in development within the FOD, an application for a Floodplain Alteration shall be submitted in accordance with Section 4-1508(B) and the FSM.

- (A) Permitted uses in FOD (Major Floodplain). Such uses shall not cause any increases in base flood elevation of the FOD (Major Floodplain) unless otherwise provided below.
  - (1) Agriculture, horticulture, forestry, and fisheries, not requiring the erection of structures, except that incidental structures shall be permitted in accordance with this Section. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
  - (2) Passive and Active Recreation Uses, except swimming pools, provided that the area of impervious surfaces within the FOD (Major Floodplain) does not exceed three percent (3%) of the area of FOD (Major Floodplain) located within the subject parcel and the boundary of the FOD (Major Floodplain) does not change.
  - (3) Stormwater management improvements as follows:
    - (a) Rooftop disconnection. Associated soil amendments shall be located outside of areas of existing tree cover and shall not require the clearing of existing tree cover.
    - (b) Sheet flow to conservation area.
    - (c) Sheet flow to vegetated filter and associated soil amendments located outside of areas of existing tree cover and not requiring the clearing of existing tree cover.
    - (d) Grass channel and associated soil amendments.
    - (e) Soil amendments located outside of areas of existing tree cover and not requiring the clearing of existing tree cover.
    - (f) Other stormwater management improvements provided that such improvements shall only serve permitted or approved special exception uses in the FOD, and shall only serve those portions of such uses that are located within the FOD.
  - (4) Utility lines in the floodplain and road crossings. An increase in base flood elevation on site may be permitted provided a CLOMR is



obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use. Road crossings shall be designed and constructed in accordance with the standards and regulations of the Virginia Department of Transportation (VDOT) and/or the FSM, whichever shall apply.

- (5) Public roads shown on the Comprehensive Plan or included in a Capital Improvement Program project. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
- (6) Public roads, private roads, and driveways.
- (7) Repair, reconstruction or improvement of existing residences, so long as the footprint of the existing residence is not increased within the FOD and provided that such repair, reconstruction or improvement, whether located within or outside of the FOD, is not a substantial improvement. If such repair, reconstruction or improvement is a substantial improvement then conformance with Section 4-1509 shall be required.
- (8) Parking areas accessory to permitted or approved special exception uses in the FOD. All such parking areas shall be equipped with best management practices in accordance with Chapter 5 of the FSM and Chapter 1096 of the Codified Ordinances.
- (9) Incidental structures, not exceeding 840 square feet of floor area, associated with permitted or approved special exception uses in the FOD, and temporary structures associated with Special Events in the FOD. Incidental structures include storage sheds, maintenance sheds, backstops, bath houses and locker rooms. Provided, however, bulk storage of gasoline, chemicals, fuels or similar substances are prohibited in the FOD; and further provided that any new construction shall comply with applicable FEMA standards.
- (10) Temporary storage of material or equipment necessary in the construction of permitted or special exception uses in the FOD.
- (11) Alterations of the floodplain associated with any permitted or approved special exception uses in the FOD. Such alterations shall not relocate or alter the natural active channel except for road crossings permitted under Section 4-1505(A)(4) or Section 4-1505(A)(13), to protect existing habitable structures subject to periodic flooding, or for stream restoration permitted under Section 4-1505(A)(16). Applications for alterations of the floodplain shall be in accordance with Section 4-1508(B). To the extent that the boundaries of the FOD change as a result of an approved Floodplain Alteration, any areas no longer within the FOD may be used for any use in the underlying zoning district,

subject to the provisions of the applicable zoning district regulations and conditions of any approved special exception.

- (12) Restoration and rehabilitation of historic structures.
- (13) Road crossings that result in an increase in the base flood elevation off-site provided that:
  - (a) A CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
  - (b) The road crossing shall be a feature shown on the Comprehensive Plan or included in a Capital Improvements Program project.
  - (c) The road crossing shall be designed and constructed in accordance with the standards and regulations of the Virginia Department of Transportation and/or the FSM, whichever shall apply.
  - (d) The resulting increase in the base flood elevation shall not affect existing buildings and structures.
  - (e) Affected off-site property owners may at any time mitigate impacts on their land as a result of an increase in the base flood elevation by:
    - (i) Submitting a Floodplain Alteration to reclaim that portion of their land subject to the increase in base flood elevation as a result of the road crossing, provided there is no increase in the base flood elevation; and/or
    - (ii) Requesting a modification of the building setback or parking setback requirements on specific lots or parcels of land affected by the increase in the base flood elevation by special exception approved by the Board of Supervisors, in accordance with Section 6-1300 and 4-1507 of the Zoning Ordinance.
- (14) Public water utility drinking water supply reservoirs, including, without limitation, reclaimed quarries.
- (15) Maintenance of the design conditions of an approved Floodplain Alteration.
- (16) Stream Restoration designed in accordance with the FSM and approved by the County. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.

- (17) Wetland Mitigation. An increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.
  - (18) Flood mitigation practices carried out in order to minimize and reduce flood risk in accordance with the Code of Federal Regulations, Title 44, Section 78.1, et seq.
  - (19) Special Events, pursuant to 5-500(C), without land disturbing activity.
- (B) Permitted uses in floodplains in FOD (Minor Floodplain), with or without an increase in base flood elevation:
- (1) Uses allowed under Section 4-1505(A), except that increases in the base flood elevation in the FOD (Minor Floodplain) shall be permitted.
  - (2) Alteration of the floodplain whether or not associated with a permitted or approved special exception use in the FOD. To the extent that the boundaries of the FOD change as a result of the Floodplain Alteration, any areas no longer within the FOD may be used for any use in the underlying zoning district, subject to the provisions of the applicable zoning district regulations and conditions of any approved special exception.
  - (3) Stormwater management improvements whether or not associated with permitted or approved special exception uses in the FOD.
  - (4) Ponds designed by the Natural Resources Conservation Service, a Licensed Professional Engineer, or a Class B Land Surveyor.
  - (5) Basketball or tennis courts, and swimming pools.
  - (6) Parking areas less than 5,000 square feet not otherwise permitted. Such parking areas shall not be subject to 100-year flooding greater than one (1) foot in depth, shall be equipped with best management practices in accordance with Chapter 5 of the FSM and Chapter 1096 of the Codified Ordinances, and shall not result in any change in existing grade.

**4-1506**

**Special Exception Uses.** The following uses and structures may be permitted in the FOD (Major Floodplain or Minor Floodplain) by the Board of Supervisors by special exception, subject to Section 6-1300 and Section 4-1507, provided that such uses conform with Section 5-1000 and such uses shall not cause any increase in the base flood elevation of the FOD (Major Floodplain) unless otherwise provided below. Uses allowed in the underlying district shall be prohibited to the extent such uses are not permitted or special exception uses in the FOD. Where any uses, structures or improvements will result in development within the FOD,

an application for a Floodplain Alteration shall be submitted in accordance with Section 4-1508(B) and the FSM.

- (A) Marinas, boat rentals, docks, piers, wharves, water ski jump facilities.
- (B) Special Events, pursuant to 5-500(C), with land disturbing activity.
- (C) Riding stables.
- (D) Structures required for the operation of a public utility not otherwise permitted by this Ordinance.
- (E) Incidental structures, greater than 840 square feet of floor area, associated with permitted or approved special exception uses in the FOD. Incidental structures include storage sheds, maintenance sheds, backstops, bath houses and locker rooms. Provided, however, bulk storage of gasoline, chemicals, fuels or similar substances are prohibited in the FOD; and further provided that any new construction shall comply with applicable FEMA standards.
- (F) Passive and Active Recreation Uses, except swimming pools, provided that the area of impervious surfaces within the FOD (Major Floodplain) does not exceed ten percent (10%) of the area of FOD (Major Floodplain) located within the subject parcel, that cause the boundary of the FOD (Major Floodplain) to change, and/or that cause an increase in base flood elevation. Such increase in base flood elevation may be permitted provided a CLOMR is obtained from FEMA prior to approval of the requisite Floodplain Alteration application for such use.

**4-1507**

**Standards For A Special Exception.** In considering applications for a special exception, the Board of Supervisors shall be satisfied that the following standards and those of Section 6-1300 have been met:

- (A) The proposed use will not increase the danger to life and property due to increased flood heights or velocities.
- (B) The proposed use will not increase the danger that materials may be swept downstream to the injury of others.
- (C) The proposed water supply and sanitation systems are designed to prevent disease, contamination, and unsanitary conditions.
- (D) The proposed use or structure shall be located and designed to limit its susceptibility to flood damage, and available alternative locations, not subject to flooding, for the proposed use shall be considered.
- (E) The proposed use is compatible with existing and planned development.
- (F) The proposed use is in harmony with the Comprehensive Plan.

- (G) The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters expected at the site shall not cause significant damage.

**4-1508**

**Floodplain Overlay District Development Procedures.**

- (A) **Floodplain Information to be Submitted with Land Development Applications.** All new subdivision proposals and other proposed development greater than fifty (50) lots or five (5) acres, whichever is the lesser, on any parcel of land which includes FOD within its boundaries, shall include with such proposals base flood elevation data in accordance with Chapter 5 of the FSM. The submission of such base flood elevation data shall be considered a request for a cartographic interpretation pursuant to Section 6-407, to interpret the exact location of the boundaries of the FOD based on such data.
- (B) **Floodplain Alteration.** Any proposed development in the FOD shall require approval of a Declaration of No Impact to Floodplain or Floodplain Alteration in accordance with Chapter 5 of the FSM. Any required Floodplain Alteration shall conform with the following:
  - (1) **Procedures for Floodplain Alterations.** Applications for Floodplain Alterations shall be in accordance with Chapters 5 and 8 of the FSM and conform with the following procedures:
    - (a) An approved CLOMR from FEMA shall be provided prior to approval of a Floodplain Alteration that proposes any increase in the base flood elevation within the FOD (Major Floodplain).
    - (b) Floodplain Alterations that would result in changes to the boundaries of the FOD shall be subject to the following:
      - (i) The application for such Floodplain Alteration shall be considered a request for a cartographic interpretation pursuant to Section 6-407 to interpret the exact location of the boundaries of the FOD upon approval of the Floodplain Alteration.
      - (ii) Prior to approval of a Floodplain Alteration that would result in any increase in the base flood elevation off-site or other changes to the boundaries of the FOD off-site, an instrument describing the change in the base flood elevation executed by each affected property owner shall be recorded among the land records of Loudoun County, Virginia.
  - (2) **Engineering and Environmental Criteria for Floodplain Alterations.** All proposed alterations to the floodplain shall meet the following criteria:

- (a) Alterations to the floodplain shall not create erosive water velocity on-site or off-site (where erosive water velocity is based on analysis of the surface material and permissible velocities for specific cross sections affected by the proposed alteration,), and the mean velocity of stream flow at the downstream end of the site after alteration shall be no greater than the mean velocity of the stream flow under existing conditions.
  - (b) Alterations to the floodplain shall be in conformance with Chapter 1220 of the Codified Ordinances of Loudoun County and the Erosion and Sediment Control Law, Va. Code Section 62.1-44.15:51 et seq.
  - (c) The flood carrying capacity within the altered floodplain shall be maintained.
- (C) **Zoning Permit Required.** All development occurring within the FOD (Major Floodplain), including placement of manufactured homes, shall be undertaken only upon the approval of a zoning permit. The following provisions shall apply to all such zoning permits:
- (1) In addition to the requirements of Section 6-1001, the application for such zoning permit shall include the following:
    - (a) Copies of all necessary permits from Federal, State, or local agencies from which prior or concurrent approval is required.
    - (b) The base flood elevation.
    - (c) The elevation of the lowest floor (including basement).
    - (d) For a structure to be flood-proofed (non-residential only), the elevation to which the structure will be flood-proofed.
    - (e) Topographic information showing existing and proposed ground elevations.

#### 4-1509

#### **Floodplain Overlay District Development Standards:**

- (A) **General Development Standards.** The following provisions shall apply to development located in the FOD (Major Floodplain):
- (1) **Residential Construction.** New construction or substantial improvement of any residential structure (including manufactured homes) shall have the lowest floor, including basement, elevated to or above (one (1) foot freeboard recommended) the base flood elevation.
  - (2) **Non-Residential Construction.** New construction or substantial improvement of any commercial, industrial, or non-residential building (including manufactured homes) shall have the lowest floor, including basement, elevated to or above the base flood

elevation. Non-residential buildings may be flood-proofed in lieu of being elevated provided that all areas of the building components lower than one (1) foot above the base flood elevation are water tight with walls impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A licensed professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the base flood elevation to which such structures are floodproofed, shall be retained by Floodplain Administrator.

- (3) All new construction and substantial improvements (including manufactured homes) shall be in accordance with all applicable sections of this Ordinance, the FSM, and Chapter 1410 of the Codified Ordinances, and anchored to prevent flotation, collapse or lateral movement of the structure.
- (4) Newly placed manufactured homes and/or substantial improvements to manufactured homes shall meet all applicable State anchoring requirements for resisting wind forces and shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors.
- (5) All new construction and substantial improvements (including manufactured homes) shall be constructed with materials and utility equipment resistant to flood damage.
- (6) All new construction or substantial improvements (including manufactured homes) shall be constructed by methods and practices that minimize flood damage.
- (7) 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.
- (8) New and replacement public and individual water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- (9) New and replacement public sewer systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
- (10) Individual sewage disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

- (11) Prior to the approval of a Floodplain Alteration for any proposed alteration or relocation of any channel or watercourse, all required permits shall be obtained from the U. S. Army 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 agencies). The applicant shall provide notification of such alteration or relocation to the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA. If such alteration or relocation results in a change to the floodplain in an adjacent town, city, county, or state, notification shall also be provided by the applicant to such jurisdiction.
  - (12) The flood carrying capacity within an altered or relocated portion of any channel or watercourse shall be maintained. Under no circumstances shall any development adversely affect the water carrying capacity of any channel or watercourse.
- (B) **Space Below the Lowest Floor.** In FOD (Major Floodplain), fully enclosed areas, of new construction or substantially improved structures, which are below the base flood elevation shall meet the following minimum standards:
- (1) Such areas shall not be designed or used for human habitation. Such areas shall only be used for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to such areas shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).
  - (2) Such areas shall be constructed entirely of flood resistant materials below the base flood elevation.
  - (3) Such areas shall include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters that are either certified by a licensed professional engineer or architect or that meet the following minimum design criteria:
    - (a) Provide a minimum of two (2) openings on different sides of each enclosed area. Foundation enclosures made of flexible skirting are not considered enclosed areas for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, are considered as enclosed areas and require such openings.
    - (b) The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding.



- (c) If a building has more than one (1) enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.
- (d) The bottom of all required openings to such enclosed areas shall be no higher than one (1) foot above the adjacent grade.
- (e) Openings shall only be equipped with screens, louvers, or other opening coverings or devices that permit the automatic flow of floodwaters in both directions.

(C) **Standards for Recreational Vehicles.** The following provisions shall apply to recreational vehicles located within the FOD (Major Floodplain):

- (1) Any recreational vehicles placed on a site shall be fully licensed, on its wheels or jacking system, and attached to the site only by quick disconnect type utilities and security devices, and shall have no permanently attached additions; or
- (2) Recreational vehicles placed on a site for 180 days or longer shall be deemed to be manufactured homes and shall meet all development standards of Section 4-1509(A) and 4-1509(B).

(D) **Standards for Subdivision Proposals.** The following provisions shall be required for any subdivision of a parcel that includes FOD (Major Floodplain):

- (1) All subdivision proposals shall be consistent with the need to minimize flood damage.
- (2) All subdivision proposals that have public utilities and facilities, such as sewer, gas, electrical and water systems, shall have such utilities and facilities located and constructed to minimize flood damage.
- (3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.

**4-1510 Density Calculations.** For purposes of calculating the permitted floor area and number of residential units in the underlying zoning district, the land area in any portion of the FOD shall be included as part of the land area for such calculations.

**4-1511 Variations.**

(A) **Authority.** Pursuant to Code of Federal Regulations 44CFR60.6, the Board of Supervisors may approve a variation of the standards of Sections 4-1509(A), (B), and (C) for any proposed development within the FOD (Major Floodplain) in the instances as set forth below. Requests for approval of a variation of the standards of Sections 4-1509(A), (B), and (C) shall be made in accordance with the procedures for a Minor Special Exception application as set forth in Section 6-1300, except that the issues

for consideration shall be as set forth in Section 4-1511(B). No variation shall be approved for any proposed development within the FOD (Major Floodplain) that will cause any increase in the base flood elevation of the FOD (Major Floodplain).

- (1) New construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood elevation provided that such new construction or substantial improvement is protected by methods that minimize flood damages during the base flood and creates no additional threats to public safety.
  - (2) Repair or rehabilitation of historic structures provided that such repair or rehabilitation shall not preclude the structure's continued designation as a historic structure and the variation is the minimum necessary to preserve the historic character and design of the structure.
- (B) **Application for a Variation of the Standards of Sections 4-1509(A), (B), and (C).** Any person owning property, or having a possessory or contract interest in property and the consent of the owner, may file an application for variation of the standards of Sections 4-1509(A), (B), and (C) in regard to such property with the Floodplain Administrator. The application shall contain the following information and such additional information as required by Section 6-403:
- (1) The particular standards of Sections 4-1509(A), (B), and (C) that prevent the proposed construction on, or use of, the property.
  - (2) The existing zoning of the property, including any previously approved modifications, conditions, or proffers.
  - (3) The special conditions, circumstances or characteristics of the land, building or structure that prevent the use of the land in compliance with the standards of Sections 4-1509(A), (B), and (C).
  - (4) The particular hardship that would result if the specified standards of Sections 4-1509(A), (B), and (C) were to be applied to the property.
  - (5) The extent to which it would be necessary to vary the standards of Sections 4-1509(A), (B), and (C) in order to permit the proposed construction on, or use of, the property.
  - (6) An explanation of how the requested variation conforms to each of the applicable standards set out in Section 4-1511(D).
- (C) **Issues for Consideration.** In considering an application for a variation of the standards of Sections 4-1509(A), (B), and (C), the following factors shall be given reasonable consideration:

- (1) The danger to life and property due to increased flood heights or velocities caused by encroachments.
  - (2) The danger that materials may be swept on to other lands or downstream to the injury of others.
  - (3) The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.
  - (4) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.
  - (5) The importance of the services provided by the proposed facility to the community.
  - (6) The requirements of the facility for a waterfront location.
  - (7) The availability of alternative locations not subject to flooding for the proposed use.
  - (8) The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
  - (9) The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
  - (10) The safety of access by ordinary and emergency vehicles to the property in time of flood.
  - (11) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.
  - (12) The historic nature of a structure.
  - (13) Such other factors which are relevant to the purposes of this ordinance.
- (D) **Decision on Application for Variation of the Standards of Sections 4-1509(A), (B), and (C).** No such variation of the standards of Sections 4-1509(A), (B), and (C) shall be approved by the Board of Supervisors unless all of the following findings are made:
- (1) The applicant has demonstrated good and sufficient cause.
  - (2) Failure to grant the variation of the standards of Sections 4-1509(A), (B), and (C) would result in exceptional hardship to the applicant.
  - (3) Granting of such variation of the standards of Sections 4-1509(A), (B), and (C) will not result in:

- (a) any increase in base flood elevation of the FOD (Major Floodplain);
  - (b) additional threats to public safety;
  - (c) extraordinary public expense;
  - (d) the creation of nuisances;
  - (e) fraud or victimization of the public; or
  - (f) conflicts with other local laws or ordinances.
- (4) The variation of the standards of Sections 4-1509(A), (B), and (C) is the minimum required to provide relief.
- (E) **Notice of Approval.** Upon approval of a variation of the standards of Sections 4-1509(A), (B), and (C), the Floodplain Administrator shall notify the applicant of such approval, in writing, and that development in accordance with the approved variation may increase the risks to life and property and may result in increased premium rates for flood insurance.



Loudoun County - Village of Waterford SWM Plan Development  
Community Flood Preparedness Fund (CFPF)  
Grant Application Package – Section C

# Loudoun County 2019 Comprehensive Plan



## [Link to the Loudoun County 2019 Comprehensive Plan](https://www.loudoun.gov/5221/Board-of-Supervisors-Comprehensive-Plan-)

<https://www.loudoun.gov/5221/Board-of-Supervisors-Comprehensive-Plan->

The screenshot shows the Loudoun County website with the following content:

- Navigation menu: Government, Services, Residents, Departments & Offices, Business
- Search bar: Search
- Breadcrumbs: Home > Departments & Offices > Planning & Zoning > Planning > Loudoun County Comprehensive Plan > Board of Supervisors Comprehensive Plan Review
- Section: **Board of Supervisors Comprehensive Plan Review**
- Text: The Board of Supervisors began its review of the 2019 draft Comprehensive Plan after it was certified by the Planning Commission.
- List of links:
  - [Loudoun County 2019 Comprehensive Plan \(Loudoun 2049 Comprehensive Plan\) \(Certified Draft, March 13, 2019\) \(PDF\)](#)
  - [Letter from the Planning Commission to the Board of Supervisors: Transmittal of Plan \(PDF\)](#)
- Note: On April 24, 2019, the Board of Supervisors voted to change the name of the draft Loudoun 2040 Comprehensive Plan to the draft Loudoun County 2019 Comprehensive Plan.
- Section: **2019 Board of Supervisors Comprehensive Plan Meetings**
- Text: In addition to the June 20, 2019, business meeting, the Board of Supervisors held two public hearings and eight work sessions on the draft Comprehensive Plan. The dates serve as links to related documents for those meetings.
- Table of meetings:

Date	Meeting Type	Task
<a href="#">April 3, 2019</a>	Work Session	Model Results Presentation
<a href="#">April 24, 2019</a>	Public Hearing	Public Input
<a href="#">April 27, 2019</a>	Public Hearing	Public Input
<a href="#">May 1, 2019</a>	Work Session	Plan Review
<a href="#">May 8, 2019</a>	Work Session	Plan Review
<a href="#">May 20, 2019</a>	Work Session	Plan Review
<a href="#">May 29, 2019</a>	Work Session	Plan Review
<a href="#">June 1, 2019</a>	Work Session	Plan Review
<a href="#">June 5, 2019</a>	Work Session	Plan Review
<a href="#">June 15, 2019</a>	Work Session	Plan Review
<a href="#">June 20, 2019</a> (The item is posted here as part of the meeting packet. See item #03 and attachments.)	Business Meeting	Adoption of 2019 Comprehensive Plan



# **Social Vulnerability Index Score(s) for the Project Areas**

DATE

11/2/2023

DRAWN BY

MNP

CHECKED BY

JJD

**VILLAGE OF WATERFORD  
SOCIAL VULNERABILITY INDEX**

SOURCE: VRFIS SVI LAYER

PREPARED FOR LOUDOUN COUNTY  
DEPARTMENT OF TRANSPORTATION AND CAPITAL INFRASTRUCTURE

SCALE

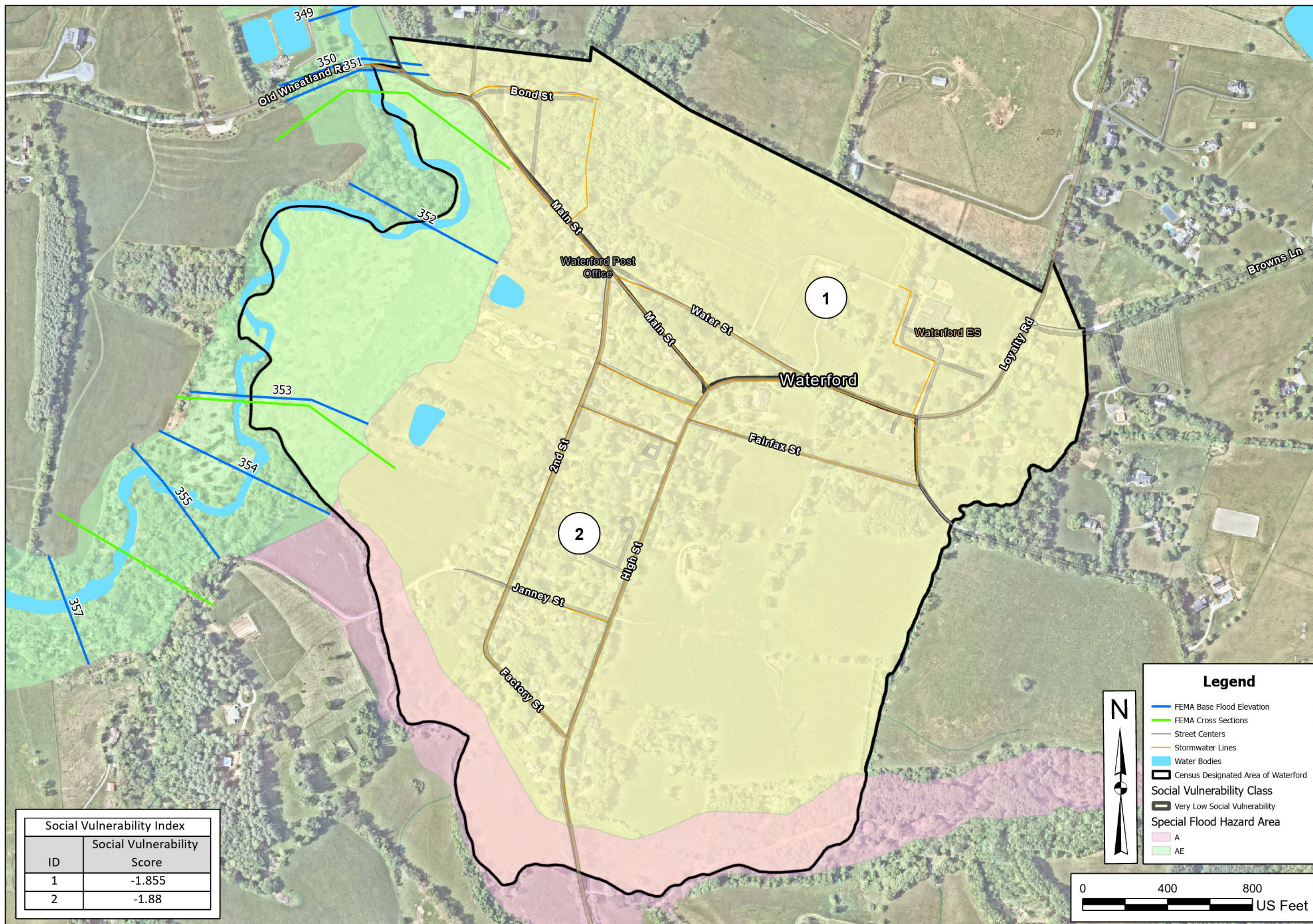
1" = 400'

PROJECT NUMBER

N/A

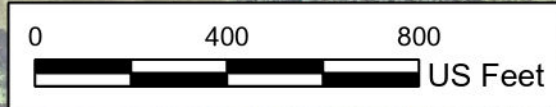
SHEET NUMBER

APPENDIX C



**Legend**

- FEMA Base Flood Elevation
- FEMA Cross Sections
- Street Centers
- Stormwater Lines
- Water Bodies
- Census Designated Area of Waterford
- Social Vulnerability Class**
- Very Low Social Vulnerability
- Special Flood Hazard Area**
- A
- AE



Social Vulnerability Index	
ID	Social Vulnerability Score
1	-1.855
2	-1.88





# Waterford FOUNDATION, INC.

Post Office Box 142 • Waterford, Virginia 20197 • 540-882-3018  
[www.waterfordfoundation.org](http://www.waterfordfoundation.org) • [info@waterfordfoundation.org](mailto:info@waterfordfoundation.org)

## **Information for the stormwater management grant:**

Reports of damage from stormwater appear in four of the Foundation's Annual Reports. Reports do not begin until the early 1980's so they are not fully representative of issues that have emerged. The following are excerpts from those four reports regarding Foundation property conditions:

2001

The Tin Shop (owned by the Foundation at that time, but now a private residence) has water damage and street drainage problems.

2002

Regarding the Tin Shop, next year we hope to address long-term problems in front of the building where there is inadequate drainage for stormwater.

2003

The Bond Street Meadow (Foundation property) was hit hard by September storms; the creek footbridge also fell victim to the onslaught.

2011

A major focus of the Phillips Farm Committee has been reviewing a variety of options to address erosion problems and manage surface water along the 5500 Foot segment of the South Fork of the Catoctin Creek. The Tannery Bridge is being relocated because of severe erosion.

## **Current Conditions that affect Foundation and private properties in the village of Waterford:**

Entrance to the village on Clarks Gap Road at the stream crossing is subject to road damage and erosion.

On Janney and Patrick Streets, the damage to the sides of the road and deep crevices caused by flowing water is obvious. Water streams down both streets, flooding the road and walkways on Second Street.

Properties on the side of Second Street that backs to the Phillips Farm tract regularly have flooded basements and standing water.

On the Phillips Farm, the original drainage system built by the former owners that consisted of clay piping is collapsing causing dangerous sink holes and deep gullies. The water has no where to go.

Because the millrace is no longer acting as one of the paths for water to move around the village homes and roads, water traveling downhill from Second and Main Streets toward the Catoctin has caused major erosion – both along the streams and along the creek.

Bond and Liggett Streets show evidence of severe rutting and degradation of the gravel surface.

In the village center, a stream runs under the Corner Store (Foundation Property) and across the street under the foundation of the Tin Shop, possibly causing deterioration of that foundation and the supports of the house.

On Water Street, ditches along the road show signs of deep erosion and have caused trees to fall over as their support is washed away.

October 27, 2023

Marie Caraballo  
Asst. Design Program Manager  
Loudoun County  
Department of Transportation & Capital Infrastructure  
101 Blue Seal Dr., SE, Ste. 102  
P.O. Box 7500  
Leesburg, VA 20177

## **Re: Development of a Stormwater Management (SWM) Master Plan for the Village of Waterford**

Ms. Caraballo,

Kimley-Horn and Associates, Inc. (Kimley-Horn) is pleased to submit this task order proposal to the Loudoun County Department of Transportation and Capital Infrastructure (Loudoun County) to provide professional consulting services related to the development of a Stormwater Master Plan for the Village of Waterford, Virginia (Village). The language outlined below identifies our project understanding, scope of requested services, and accompanying fees related to the overall project.

### **PROJECT UNDERSTANDING**

This proposal summarizes the phases and tasks necessary to evaluate the existing hydrologic and hydraulic features of the Village of Waterford and determine conceptual solutions to help abate localized drainage issues and impacts due to large scale flooding. The Village and its historical areas are impacted by the South Fork of Catoctin Creek, as well as a lack of adequate stormwater management and drainage infrastructure. As part of this project, Kimley-Horn will utilize dynamic SWMM modeling to identify the inadequacies in the existing stormwater management system, and then model proposed solutions that will assist in developing strategies to prevent and mitigate damages from the riverine and localized flooding.

### **SCOPE OF SERVICES**

This proposal has been divided into six (6) tasks. Each task is outlined below with a summary defining the Scope of Services for each task. A lump sum cost to perform this work is provided (Attachment 1) and includes Kimley-Horn project management and coordination time.

1. Site Base Mapping, Project Due Diligence, and Site Visit
2. Hydrologic Analysis of the Village of Waterford
3. Development of a Village of Waterford Watershed Model
4. Development of a Village of Waterford Flood and Drainage Improvements Concept Plan
5. Development of a Village of Waterford Stormwater Master Plan Report
6. Meetings & Coordination

### **TASK 100 - SITE BASE MAPPING, PROJECT DUE DILIGENCE, AND SITE VISIT**

Kimley-Horn will develop Geographic Information Systems (GIS) base-maps illustrating the existing site conditions for the following Village study areas:

- South Fork of Catoctin Creek at Route 698 (Old Wheatland Road) crossing near the Waterford Mill
- South Fork of Catoctin Creek at Route 662 (Clarkes Gap Road) crossing at the Entrance to the Village of Waterford
- Lower Main Street and Bond Street Corridors
- Janney Street and Patrick Street Corridors
- Intersection of 2<sup>nd</sup> Street, Water Street, and Main Street

The base mapping will utilize readily available Loudoun County GIS, VFRIS, and FEMA data as to depict the impacts of the existing floodplain areas on pertinent infrastructure and private property. The base mapping will be used by Kimley-Horn to assist in site reconnaissance efforts and to supplement all modeling and study deliverables outlined in this Scope of Services.

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

- *Pending Village of Waterford Survey Data – Derived by Others (assumed delivery early 2024)*
- Loudoun County - Flood Insurance Study (FIS)
- FEMA relevant Flood Insurance Rate Maps (FIRMs)
- Any relevant studies or approved development plans within the project study areas (to be provided by the County)
- Available FEMA and County Hydraulic and/or Floodplain Models
- Available VDOT / Loudoun County Roadway/Drainage Infrastructure Plans for the project Study Areas
- Best available VFRIS, FEMA, State, and County GIS Shapefile Data and Aerial Imagery
- Available as-builts/electronic records of existing stormwater infrastructure.

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

## **TASK 200 – HYDROLOGIC ANALYSIS OF THE VILLAGE OF WATERFORD STUDY AREA WATERSHEDS.**

Kimley-Horn will determine hydrologic parameters of the following watersheds:

- South Fork of Catoctin Creek at Route 698 (Old Wheatland Road) stream crossing near the Waterford Mill
- South Fork of Catoctin Creek at Route 662 (Clarkes Gap Road) stream crossing at the Entrance to the Village of Waterford
- Lower Main Street and Bond Street Corridors
- Janney Street and Patrick Street Corridors
- Intersection of 2<sup>nd</sup> Street, Water Street, and Main Street

Kimley-Horn will determine existing study area hydrologic parameters such as drainage areas, Runoff Curve Numbers (RCNs), Times of Concentrations (Tc), Basin Slopes, as well as all required catchment area data needed to effectively model the study area existing hydrologic conditions. The hydrologic parameters will be derived from a compilation of the most readily available aerial landcover data, pending survey data, GIS Shapefile data, and soils data. The derived drainage basin hydrologic conditions will be utilized as model input parameters in Task 300 to determine each study area's flow characteristics for the 1-yr, 2-yr, 10-yr, and 100-yr storm events. All information derived in this task will be documented within the Village of Waterford Stormwater Master Plan Report (Task 500).

## **TASK 300 – DEVELOPMENT OF A VILLAGE OF WATERFORD WATERSHED MODEL**

### **Task 300A – Existing Conditions Watershed Modeling**

Kimley-Horn will build an existing conditions model of the Village study area watershed's using a dynamic SWMM modeling package that will be based on pending infrastructure survey data, County GIS information, lidar topography, and will be supplemented with all relevant plan and as-built data ascertained in Task 100. Kimley-Horn will develop basin flow networks that are indicative of the Villages stormwater and roadway infrastructure, topography, and building footprint and structural features. The existing model will be validated using publicly available rainfall gage data for recent storm events, and a comparison will be performed between the existing modeled inundation to historical observed inundation in the study areas.

The modeled results and data generated in this task will be used to determine limits and depths of localized and basin wide flooding along study area corridors. Existing inundation depths, velocities, flow spread, and flood limits will be derived as part of this analysis. Kimley-Horn will develop and document both graphical and tabular results for the existing conditions modeling. These values will provide a baseline comparison to assess proposed conceptual design implementation scenarios. All information derived in this subtask will be documented within the Village of Waterford Stormwater Master Plan Report (Task 500).

### **Task 300B – Proposed Improvements Watershed Modeling**

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

Kimley-Horn will model up to two (2) conceptual solutions at each of the five (5) study areas identified in Task 100, for a total of ten (10) modeled solutions provided. After assessing the viability and potential success of the conceptual infrastructure changes within the study corridors, Kimley-Horn will run revised model scenarios for the 1, 2, 10, and 100-yr storm events to compare to the existing conditions modeling as to quantify the effect of the proposed improvements on the localized and large-scale flooding limits within the Village study areas. The graphical and tabular information generated from this task will be included in the Village of Waterford Stormwater Master Plan Report (Task 500).

### **Task 400 - Development of a Village of Waterford Flood and Drainage Improvements Concept Plan**

Based on the results determined through the Watershed Modeling (Task 300), Kimley-Horn and the County will agree upon the best five (5) conceptual solutions to evaluate further. From this, Kimley-Horn will develop five (5) - 24x36 AutoCAD conceptual exhibits that will graphically depict locations of potential flood and drainage improvements within the Village study areas. Proposed conceptual improvements will include, but are not limited to the following:

- Infrastructure based improvements
  - Additional pipe locations, inlet placement, junction boxes, etc.
- Natural based solutions
  - Stream and floodplain restoration techniques, outfall channel restoration, etc.
- Preservation and creation of open space and focus on permanent conservation of lands having flood resilience value.

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

### **Task 500 – Village of Waterford Stormwater Master Plan Report**

Kimley-Horn will develop a Village of Waterford Stormwater Master Plan Report outlining the information derived in tasks 100 - 400. Study graphics, tabular summaries, numerical analysis, and conceptual level designs created in all previous tasks will be included in the final report. Recommendations on future drainage basin stormwater management improvements, future storm sewer designs, as well as comprehensive drainage and floodplain improvement implementation scenarios for the Study Area will be included with the report.

### **Task 600 – Meetings & Coordination**

Kimley-Horn staff will be available for up to two (2) project coordination meetings to discuss the project. In addition, Kimley-Horn staff will participate in calls to discuss the project with County staff. If additional meetings and coordination activities are requested, Kimley-Horn will prepare a separate Scope of Services and cost estimate for client approval prior to proceeding with the additional work.

## **DELIVERABLES**

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

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

## OVERALL PROJECT ASSUMPTIONS

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

- All pending survey data will be provided to Kimley-Horn prior to March 31<sup>st</sup>, 2024 to facilitate completion of this study by December 31<sup>st</sup>, 2024.
- Accuracy and precision of survey data and previous studies provided by others is solely on the firm that derived the studies. Kimley-Horn will review all data provided by the County with regards to the Masterplan Study Area but assumes no responsibility for information outlined in the studies developed by others.
- All previous project information developed by others will be provided by the County to Kimley-Horn in a timely manner to accommodate anticipated project schedule.
- The flood studies and analyses proposed in this Scope of Services are intended as a planning level and will not constitute a formal FEMA floodplain study. As such this information and data will not be stamped and sealed by a Virginia Professional Engineer (PE).
- All analyses and studies developed in this Scope of Services will be based on limited survey information, and as such, the information derived will be considered “for information purposes only”.
- The Conceptual Design Exhibits referenced in this Scope of Services will be limited in terms of engineering design and analysis. As such, they will be not stamped by a licensed Virginia Professional Engineer and labeled as “Not for Construction Purposes”.
- The County will provide site access permission to Kimley-Horn, for conducting all necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Readily available County GIS shapefile and geodatabase information will be used to supplement this study, as needed.
- The County will provide all coordination with Inter-County departments with regards to this project.
- This proposal and the accompanying cost estimate are valid for a period of 90 days and will expire if not accepted within that timeframe.

## OVERALL PROJECT EXCLUSIONS

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

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

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

## **SCHEDULE**

The tasks referenced in this scope will be coordinated with County Staff. Meetings, action items, and deliverables will be tracked on a monthly basis and reported to the County with a monthly progress report for documentation of services provided. Assuming Kimley-Horn receives a notice to proceed by January 1, 2024, Kimley-Horn anticipates completion of the Scope of Services outlined above by December 31, 2024. A detailed schedule will be developed for the City outlining project workflow and deliverables after contract execution.

## **FEE AND BILLING**

Kimley-Horn will provide the following Scope of Services for a lump sum fee of **\$120,000.00**. A detailed breakdown (by task) of Kimley-Horn's fee estimate is provided in Attachment 1. Please note that fees will be invoiced monthly for services performed and payment will be due within 25 days of receipt of invoices related to this project.

## **CLOSURE**

The work described with this proposal will be completed in accordance with the terms and conditions of Contract RFQ-585 with the Loudoun County Department of Transportation and Capital Infrastructure (DTCI). We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

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



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



**ATTACHMENT 1 – KIMLEY HORN FEE BREAKDOWN**

**Loudoun County, Virginia**  
**Development of a Stormwater Management (SWM) Master Plan for the Village of Waterford**  
**November 3, 2023**  
**Lump Sum Cost Estimate**

		Loaded Hourly Rate	\$319.90	\$240.46	\$234.78	\$191.07	\$158.98	\$133.26	\$112.67					10%	
Task	Description	Program Manager	Project Manager	Sr. Engineer / Planner	Engineer / Planner II	Engineer / Planner I	Technical Analyst II	Technical Analyst I	Budget Total Hours	Budget Labor Cost	Reimbursable Expenses	Subconsultant Services	Subconsultant Mark-up	Budget Total Cost	
100	Site Base Mapping, Project Due Diligence, and Site Visit		4		9		24		37	\$5,879.71	\$65.17	\$0.00	\$0.00	\$5,944.88	
200	Hydrologic Analysis of the Village of Waterford		14		20		56		90	\$14,650.40	\$0.00	\$0.00	\$0.00	\$14,650.40	
300	Development of a Village of Waterford Watershed Model		48		128		80		256	\$46,659.84	\$0.00	\$0.00	\$0.00	\$46,659.84	
400	Development of a Village of Waterford Flood and Drainage Improvements Concept Plan		28		50		112		190	\$31,211.50	\$0.00	\$0.00	\$0.00	\$31,211.50	
500	Development of a Village of Waterford Stormwater Master Plan Report		24		18		51		93	\$16,006.56	\$0.00	\$0.00	\$0.00	\$16,006.56	
600	Meetings & Coordination		16		6		4		26	\$5,526.82	\$0.00	\$0.00	\$0.00	\$5,526.82	
	<b>TOTAL</b>	<b>0</b>	<b>134</b>	<b>0</b>	<b>231</b>	<b>0</b>	<b>327</b>	<b>0</b>	<b>692</b>	<b>\$119,934.83</b>	<b>\$65.17</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$120,000.00</b>	

\* Rates (Year 5) per Loudoun County RFQ-585



# **SECTION B – BUDGET DATA**

Project Budget Narrative and Scope of Services

Budget Narrative Template

Funding Request Authorization



# **Project Budget Narrative and Scope of Services**



# Project Budget Narrative and Scope of Services

A detailed budget narrative is included below and contains the required information outlined in the 2023 Funding Manual for the Virginia Community Flood Preparedness Fund. This section also includes the Kimley-Horn Scope of Services to develop a Stormwater Master Plan for the Village of Waterford.

**Estimated total project cost:** The total identified project cost to complete with Village of Waterford Stormwater Master Plan Development is \$120,000.00

**Amount of funds requested from the Fund:** The total amount of grant assistance sought from the Fund is \$60,000.00. A detailed breakdown of how this funding is proposed to be allocated is shown in this section as an attached Scope of Services.

**Amount of funds available:** The amount of funds available through this project's funding source is greater total estimated project cost of \$120,000.00. The following documentation is included in this section:

- Loudoun County FY2024 Adopted Budget – Village of Waterford Preserving the Landmark Infrastructure Improvements
- Loudoun County E-builder printout of C02500 fund showing CIP allocation and Unincumbered funds remaining.

**Authorization to request for funding:** Loudoun County internal Grant Application form that is signed by the County Budget Analyst, County Grants Coordinator, and County administration which authorizes the request for funding for this project has been included in this section.

October 27, 2023

Marie Caraballo  
Asst. Design Program Manager  
Loudoun County  
Department of Transportation & Capital Infrastructure  
101 Blue Seal Dr., SE, Ste. 102  
P.O. Box 7500  
Leesburg, VA 20177

## **Re: Development of a Stormwater Management (SWM) Master Plan for the Village of Waterford**

Ms. Caraballo,

Kimley-Horn and Associates, Inc. (Kimley-Horn) is pleased to submit this task order proposal to the Loudoun County Department of Transportation and Capital Infrastructure (Loudoun County) to provide professional consulting services related to the development of a Stormwater Master Plan for the Village of Waterford, Virginia (Village). The language outlined below identifies our project understanding, scope of requested services, and accompanying fees related to the overall project.

### **PROJECT UNDERSTANDING**

This proposal summarizes the phases and tasks necessary to evaluate the existing hydrologic and hydraulic features of the Village of Waterford and determine conceptual solutions to help abate localized drainage issues and impacts due to large scale flooding. The Village and its historical areas are impacted by the South Fork of Catoctin Creek, as well as a lack of adequate stormwater management and drainage infrastructure. As part of this project, Kimley-Horn will utilize dynamic SWMM modeling to identify the inadequacies in the existing stormwater management system, and then model proposed solutions that will assist in developing strategies to prevent and mitigate damages from the riverine and localized flooding.

### **SCOPE OF SERVICES**

This proposal has been divided into six (6) tasks. Each task is outlined below with a summary defining the Scope of Services for each task. A lump sum cost to perform this work is provided (Attachment 1) and includes Kimley-Horn project management and coordination time.

1. Site Base Mapping, Project Due Diligence, and Site Visit
2. Hydrologic Analysis of the Village of Waterford
3. Development of a Village of Waterford Watershed Model
4. Development of a Village of Waterford Flood and Drainage Improvements Concept Plan
5. Development of a Village of Waterford Stormwater Master Plan Report
6. Meetings & Coordination

### **TASK 100 - SITE BASE MAPPING, PROJECT DUE DILIGENCE, AND SITE VISIT**

Kimley-Horn will develop Geographic Information Systems (GIS) base-maps illustrating the existing site conditions for the following Village study areas:

- South Fork of Catoctin Creek at Route 698 (Old Wheatland Road) crossing near the Waterford Mill
- South Fork of Catoctin Creek at Route 662 (Clarkes Gap Road) crossing at the Entrance to the Village of Waterford
- Lower Main Street and Bond Street Corridors
- Janney Street and Patrick Street Corridors
- Intersection of 2<sup>nd</sup> Street, Water Street, and Main Street

The base mapping will utilize readily available Loudoun County GIS, VFRIS, and FEMA data as to depict the impacts of the existing floodplain areas on pertinent infrastructure and private property. The base mapping will be used by Kimley-Horn to assist in site reconnaissance efforts and to supplement all modeling and study deliverables outlined in this Scope of Services.

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

- *Pending Village of Waterford Survey Data – Derived by Others (assumed delivery early 2024)*
- Loudoun County - Flood Insurance Study (FIS)
- FEMA relevant Flood Insurance Rate Maps (FIRMs)
- Any relevant studies or approved development plans within the project study areas (to be provided by the County)
- Available FEMA and County Hydraulic and/or Floodplain Models
- Available VDOT / Loudoun County Roadway/Drainage Infrastructure Plans for the project Study Areas
- Best available VFRIS, FEMA, State, and County GIS Shapefile Data and Aerial Imagery
- Available as-builts/electronic records of existing stormwater infrastructure.

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

## **TASK 200 – HYDROLOGIC ANALYSIS OF THE VILLAGE OF WATERFORD STUDY AREA WATERSHEDS.**

Kimley-Horn will determine hydrologic parameters of the following watersheds:

- South Fork of Catoctin Creek at Route 698 (Old Wheatland Road) stream crossing near the Waterford Mill
- South Fork of Catoctin Creek at Route 662 (Clarkes Gap Road) stream crossing at the Entrance to the Village of Waterford
- Lower Main Street and Bond Street Corridors
- Janney Street and Patrick Street Corridors
- Intersection of 2<sup>nd</sup> Street, Water Street, and Main Street

Kimley-Horn will determine existing study area hydrologic parameters such as drainage areas, Runoff Curve Numbers (RCNs), Times of Concentrations (Tc), Basin Slopes, as well as all required catchment area data needed to effectively model the study area existing hydrologic conditions. The hydrologic parameters will be derived from a compilation of the most readily available aerial landcover data, pending survey data, GIS Shapefile data, and soils data. The derived drainage basin hydrologic conditions will be utilized as model input parameters in Task 300 to determine each study area's flow characteristics for the 1-yr, 2-yr, 10-yr, and 100-yr storm events. All information derived in this task will be documented within the Village of Waterford Stormwater Master Plan Report (Task 500).

## **TASK 300 – DEVELOPMENT OF A VILLAGE OF WATERFORD WATERSHED MODEL**

### **Task 300A – Existing Conditions Watershed Modeling**

Kimley-Horn will build an existing conditions model of the Village study area watershed's using a dynamic SWMM modeling package that will be based on pending infrastructure survey data, County GIS information, lidar topography, and will be supplemented with all relevant plan and as-built data ascertained in Task 100. Kimley-Horn will develop basin flow networks that are indicative of the Villages stormwater and roadway infrastructure, topography, and building footprint and structural features. The existing model will be validated using publicly available rainfall gage data for recent storm events, and a comparison will be performed between the existing modeled inundation to historical observed inundation in the study areas.

The modeled results and data generated in this task will be used to determine limits and depths of localized and basin wide flooding along study area corridors. Existing inundation depths, velocities, flow spread, and flood limits will be derived as part of this analysis. Kimley-Horn will develop and document both graphical and tabular results for the existing conditions modeling. These values will provide a baseline comparison to assess proposed conceptual design implementation scenarios. All information derived in this subtask will be documented within the Village of Waterford Stormwater Master Plan Report (Task 500).

### **Task 300B – Proposed Improvements Watershed Modeling**

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

Kimley-Horn will model up to two (2) conceptual solutions at each of the five (5) study areas identified in Task 100, for a total of ten (10) modeled solutions provided. After assessing the viability and potential success of the conceptual infrastructure changes within the study corridors, Kimley-Horn will run revised model scenarios for the 1, 2, 10, and 100-yr storm events to compare to the existing conditions modeling as to quantify the effect of the proposed improvements on the localized and large-scale flooding limits within the Village study areas. The graphical and tabular information generated from this task will be included in the Village of Waterford Stormwater Master Plan Report (Task 500).



### **Task 400 - Development of a Village of Waterford Flood and Drainage Improvements Concept Plan**

Based on the results determined through the Watershed Modeling (Task 300), Kimley-Horn and the County will agree upon the best five (5) conceptual solutions to evaluate further. From this, Kimley-Horn will develop five (5) - 24x36 AutoCAD conceptual exhibits that will graphically depict locations of potential flood and drainage improvements within the Village study areas. Proposed conceptual improvements will include, but are not limited to the following:

- Infrastructure based improvements
  - Additional pipe locations, inlet placement, junction boxes, etc.
- Natural based solutions
  - Stream and floodplain restoration techniques, outfall channel restoration, etc.
- Preservation and creation of open space and focus on permanent conservation of lands having flood resilience value.

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

### **Task 500 – Village of Waterford Stormwater Master Plan Report**

Kimley-Horn will develop a Village of Waterford Stormwater Master Plan Report outlining the information derived in tasks 100 - 400. Study graphics, tabular summaries, numerical analysis, and conceptual level designs created in all previous tasks will be included in the final report. Recommendations on future drainage basin stormwater management improvements, future storm sewer designs, as well as comprehensive drainage and floodplain improvement implementation scenarios for the Study Area will be included with the report.

### **Task 600 – Meetings & Coordination**

Kimley-Horn staff will be available for up to two (2) project coordination meetings to discuss the project. In addition, Kimley-Horn staff will participate in calls to discuss the project with County staff. If additional meetings and coordination activities are requested, Kimley-Horn will prepare a separate Scope of Services and cost estimate for client approval prior to proceeding with the additional work.

## **DELIVERABLES**

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

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

## OVERALL PROJECT ASSUMPTIONS

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

- All pending survey data will be provided to Kimley-Horn prior to March 31<sup>st</sup>, 2024 to facilitate completion of this study by December 31<sup>st</sup>, 2024.
- Accuracy and precision of survey data and previous studies provided by others is solely on the firm that derived the studies. Kimley-Horn will review all data provided by the County with regards to the Masterplan Study Area but assumes no responsibility for information outlined in the studies developed by others.
- All previous project information developed by others will be provided by the County to Kimley-Horn in a timely manner to accommodate anticipated project schedule.
- The flood studies and analyses proposed in this Scope of Services are intended as a planning level and will not constitute a formal FEMA floodplain study. As such this information and data will not be stamped and sealed by a Virginia Professional Engineer (PE).
- All analyses and studies developed in this Scope of Services will be based on limited survey information, and as such, the information derived will be considered “for information purposes only”.
- The Conceptual Design Exhibits referenced in this Scope of Services will be limited in terms of engineering design and analysis. As such, they will be not stamped by a licensed Virginia Professional Engineer and labeled as “Not for Construction Purposes”.
- The County will provide site access permission to Kimley-Horn, for conducting all necessary fieldwork related tasks in a timely manner to facilitate the project schedule.
- Readily available County GIS shapefile and geodatabase information will be used to supplement this study, as needed.
- The County will provide all coordination with Inter-County departments with regards to this project.
- This proposal and the accompanying cost estimate are valid for a period of 90 days and will expire if not accepted within that timeframe.

## OVERALL PROJECT EXCLUSIONS

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

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

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

## **SCHEDULE**

The tasks referenced in this scope will be coordinated with County Staff. Meetings, action items, and deliverables will be tracked on a monthly basis and reported to the County with a monthly progress report for documentation of services provided. Assuming Kimley-Horn receives a notice to proceed by January 1, 2024, Kimley-Horn anticipates completion of the Scope of Services outlined above by December 31, 2024. A detailed schedule will be developed for the City outlining project workflow and deliverables after contract execution.

## **FEE AND BILLING**

Kimley-Horn will provide the following Scope of Services for a lump sum fee of **\$120,000.00**. A detailed breakdown (by task) of Kimley-Horn's fee estimate is provided in Attachment 1. Please note that fees will be invoiced monthly for services performed and payment will be due within 25 days of receipt of invoices related to this project.

## **CLOSURE**

The work described with this proposal will be completed in accordance with the terms and conditions of Contract RFQ-585 with the Loudoun County Department of Transportation and Capital Infrastructure (DTCI). We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

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



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

**ATTACHMENT 1 – KIMLEY HORN FEE BREAKDOWN**

**Loudoun County, Virginia**  
**Development of a Stormwater Management (SWM) Master Plan for the Village of Waterford**  
**October 27, 2023**  
**Lump Sum Cost Estimate**

		Loaded Hourly Rate	\$319.90	\$240.46	\$234.78	\$191.07	\$158.98	\$133.26	\$112.67					10%	
Task	Description	Program Manager	Project Manager	Sr. Engineer / Planner	Engineer / Planner II	Engineer / Planner I	Technical Analyst II	Technical Analyst I	Budget Total Hours	Budget Labor Cost	Reimbursable Expenses	Subconsultant Services	Subconsultant Mark-up	Budget Total Cost	
100	Site Base Mapping, Project Due Diligence, and Site Visit		4		8		26		38	\$5,955.16	\$0.00	\$0.00	\$0.00	\$5,955.16	
200	Hydrologic Analysis of the Village of Waterford		14		20		56		90	\$14,650.40	\$0.00	\$0.00	\$0.00	\$14,650.40	
300	Development of a Village of Waterford Watershed Model		48		128		80		256	\$46,659.84	\$0.00	\$0.00	\$0.00	\$46,659.84	
400	Development of a Village of Waterford Flood and Drainage Improvements Concept Plan		28		50		112		190	\$31,211.50	\$0.00	\$0.00	\$0.00	\$31,211.50	
500	Development of a Village of Waterford Stormwater Master Plan Report		24		18		51		93	\$16,006.56	\$0.00	\$0.00	\$0.00	\$16,006.56	
600	Meetings & Coordination		16		6		4		26	\$5,526.82	\$0.00	\$0.00	\$0.00	\$5,526.82	
<b>TOTAL</b>		<b>0</b>	<b>134</b>	<b>0</b>	<b>230</b>	<b>0</b>	<b>329</b>	<b>0</b>	<b>693</b>	<b>\$120,000.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$120,000.00</b>	

\* Rates (Year 5) per Loudoun County RFQ-585



# Budget Narrative Template

## Appendix B: Budget Narrative Template

<p>Applicant Name: <b>Loudoun County DTCI</b>            Community Flood Preparedness Fund &amp;            Resilient Virginia Revolving Loan Fund            Detailed Budget Narrative            Period of Performance: <b>January 1, 2024</b> through <b>December 31, 2024</b>            Submission Date: <b>November 10, 2024</b></p>									
Grand Total State Funding Request									<b>\$ 60,000.00</b>
Grand Total Local Share of Project									<b>\$60,000.00</b>
Federal Funding (if applicable)									\$
Project Grand Total									<b>\$120,000.00</b>
Locality Cost Match									<b>%50</b>
Breakout By Cost Type	Personnel	Fringe	Travel	Equipment	Supplies	Contracts	Indirect Costs	Other Costs	Total
Federal Share (if applicable)									
Local Share						<b>\$60,000.00</b>			<b>\$60,000.00</b>
State Share						<b>\$60,000.00</b>			<b>\$60,000.00</b>
Pre-Award/Startup									
Maintenance									
<b>Total</b>	\$	\$	\$	\$	\$	<b>\$120,000.00</b>	\$	\$	<b>\$120,000.00</b>



# Funding Request Authorization