

# Path to a Flood Resilient Spout Run

Flood Resilient Arlington

September 7, 2023



**ARLINGTON**  
VIRGINIA

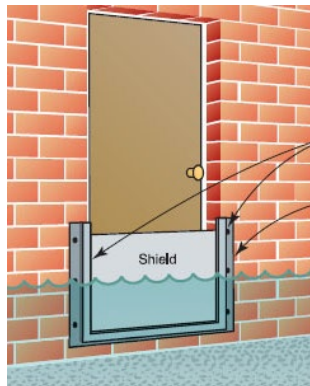


# Agenda

- Quick overview of Flood Resilient Arlington and Overland Flow
- Voluntary Property Acquisition Update
  - General Principles
  - Maintenance for Acquired properties
  - Specifics
- Missing Middle application at 2005 N Taylor St.
- High Water Detection Devices
- CIP Funding
- Update on ANP project Z290
- Brief Updates on other Initiatives
  - PLB
  - Floodplain Ordinance and FIRM Adoption
  - SW Utility
- Questions



# Key Elements of Flood Resilient Arlington



Analytics and Data Assessment

New Types and Locations for Capacity Projects

Increased Stormwater Requirements

Increased Funding


Voluntary Property Acquisition

Floodproofing Outreach



# Mapping Program Investments


## Legend


 Watersheds


## Storm Water Management Projects


### Program / Status


 Capacity Complete / Under Construction

 Capacity / Planned


 Maintenance Capital / Complete


 Maintenance Capital / Planned

 Water Quality / Complete


 Water Quality / Planned

## Past Storm Water Management Initiatives

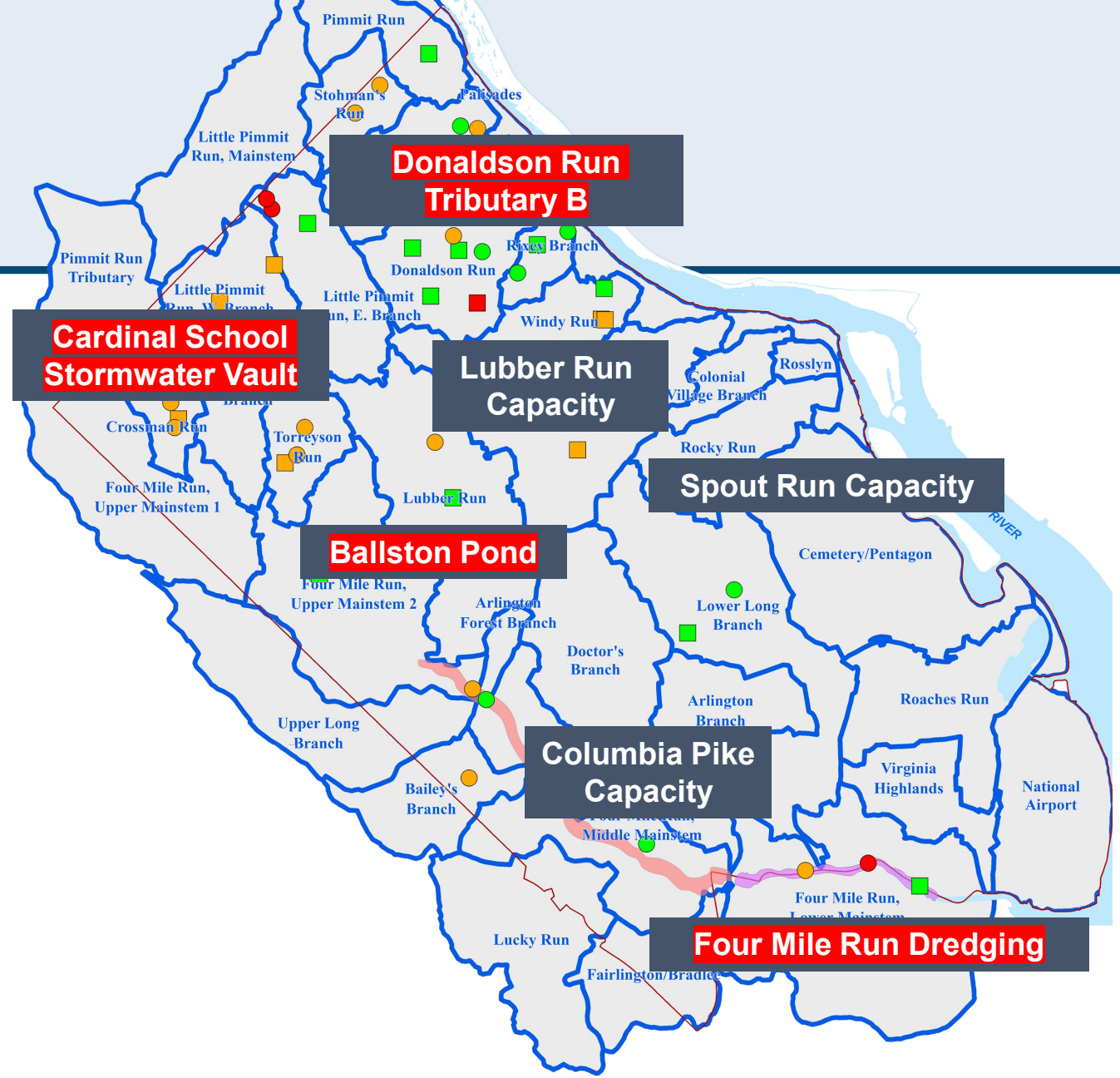
 Flood Control 1984

 Flood Plain Acquisition 60's-70's

## Other Map Elements

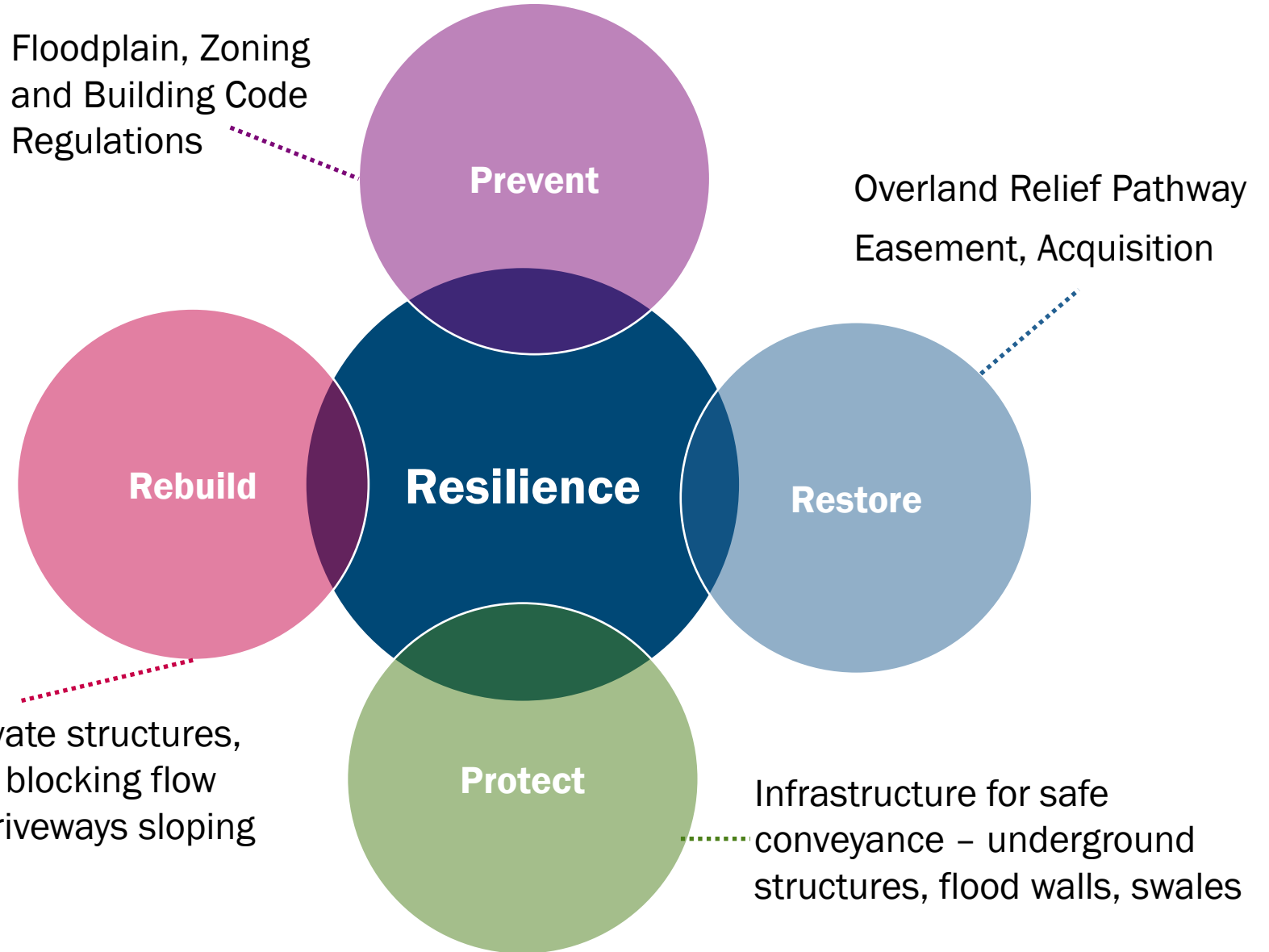
 County Line

 Potomac River





# Balancing Stormwater Priorities and Issues



The Stormwater Team is working on all of these priorities and has multiple initiatives underway



# Voluntary Property Acquisition Program

- None of the solutions evaluated for Spout Run can manage the updated 10-year storm.
- Designing for a 10-year storm event is only appropriate where overland relief is available for larger storm events.
- In Spout Run, there is not sufficient available space within existing rights-of-way to maintain the infrastructure, make resilient system upgrades, or to provide overland relief.
- **There is no long-term solution to reduce flood risk in Spout Run without adding overland relief.**
- **Phased Property Acquisition is a necessary component of a resilient stormwater improvement program to provide overland relief and reduce flood risk to the community.**

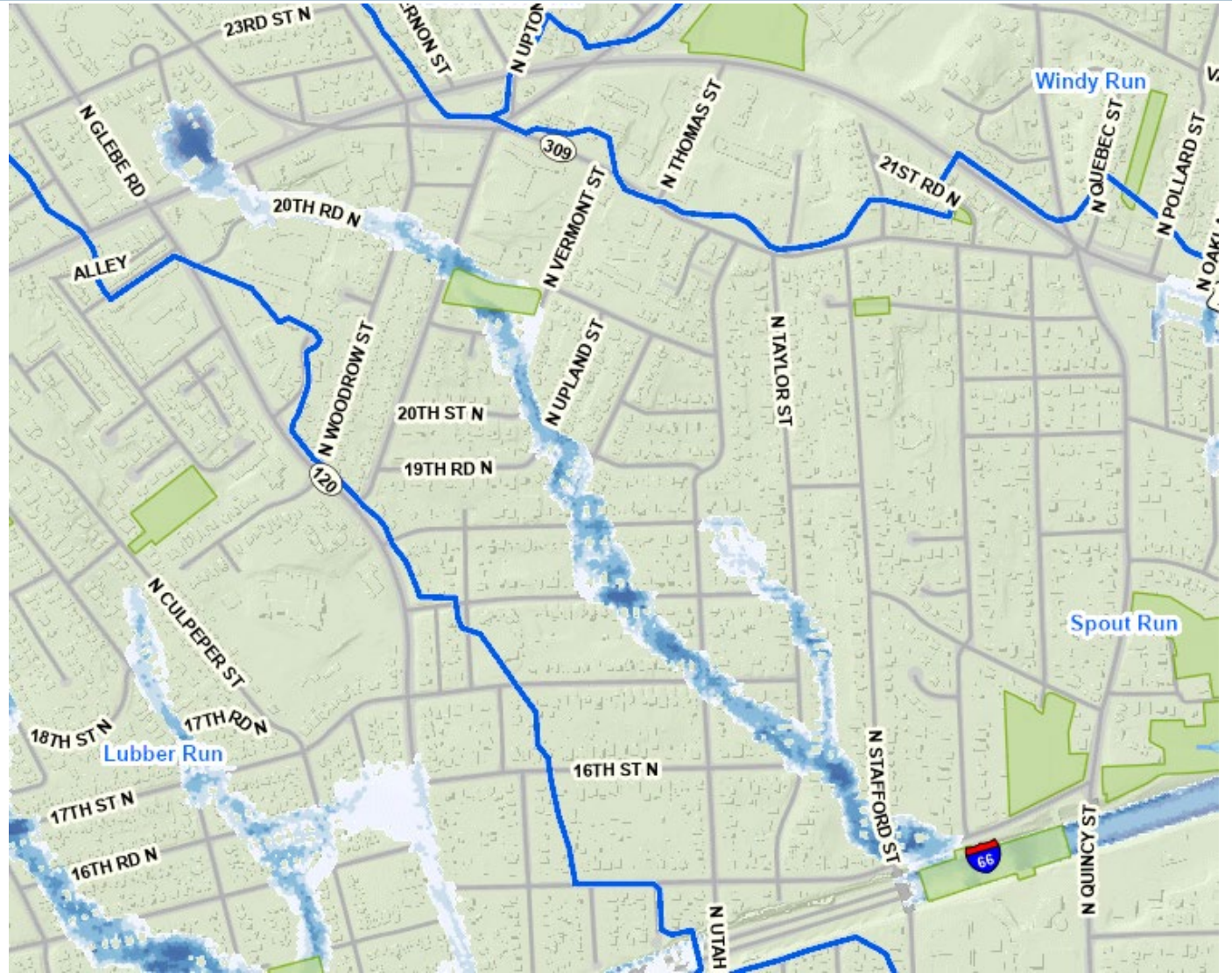


# Voluntary Property Acquisition Update

- Letters sent out in Fall 2022
- Overall, five properties have been acquired (three in Spout Run). Details regarding Spout Run properties shall follow.
- Several additional properties are in various stages of the process
- We understand that there is a lot of community interest in the status and plans for the properties. The program is in the early stages and we appreciate your patience.
- Note that we still need to respect the privacy of people involved in the program.

# Voluntary Property Acquisition Update

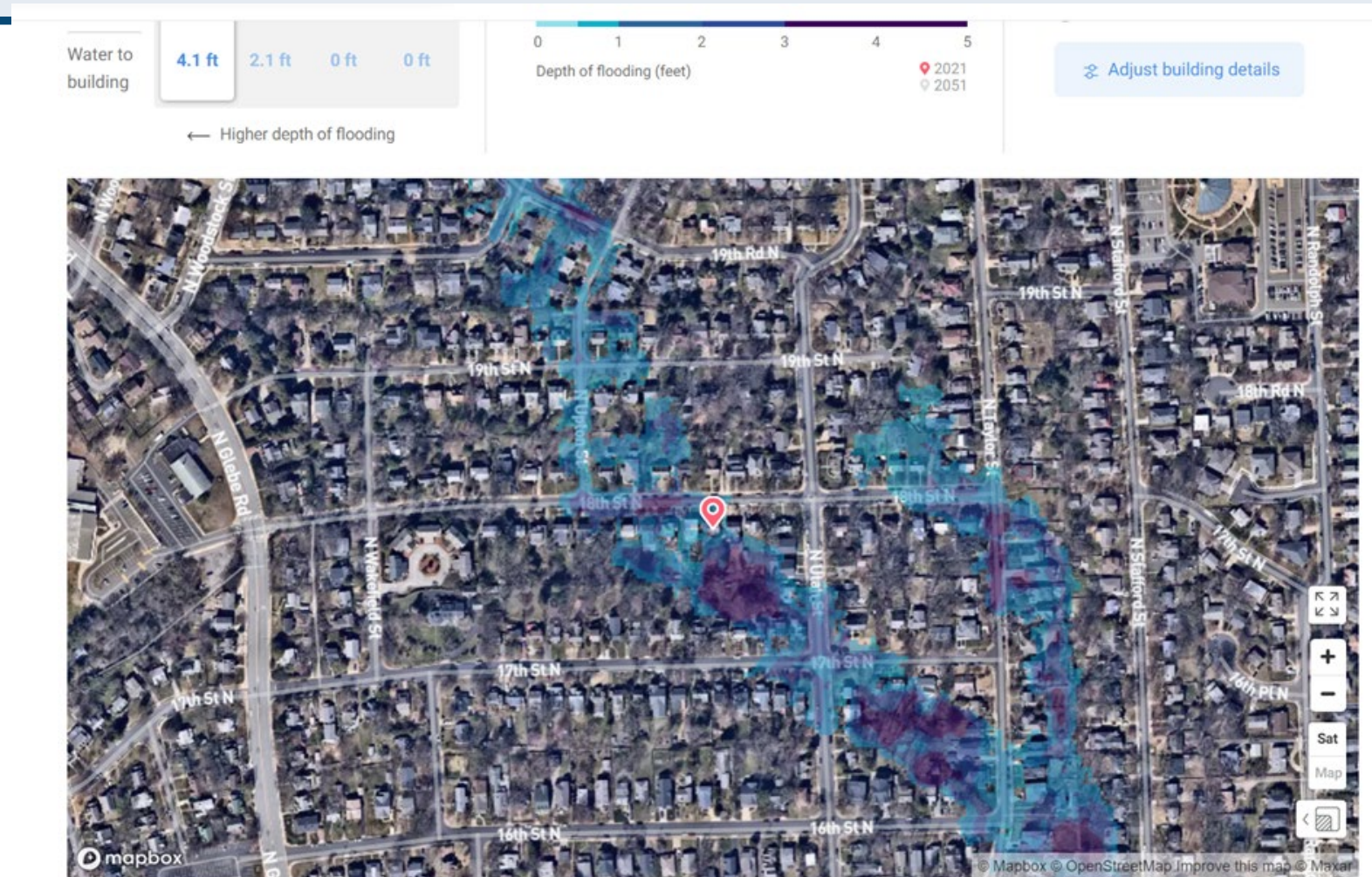
- RAMP (Risk Assessment Management Plan) shows flow path through Spout Run. Shown: 500-year projection for 2070





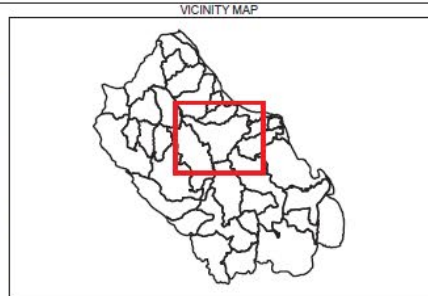
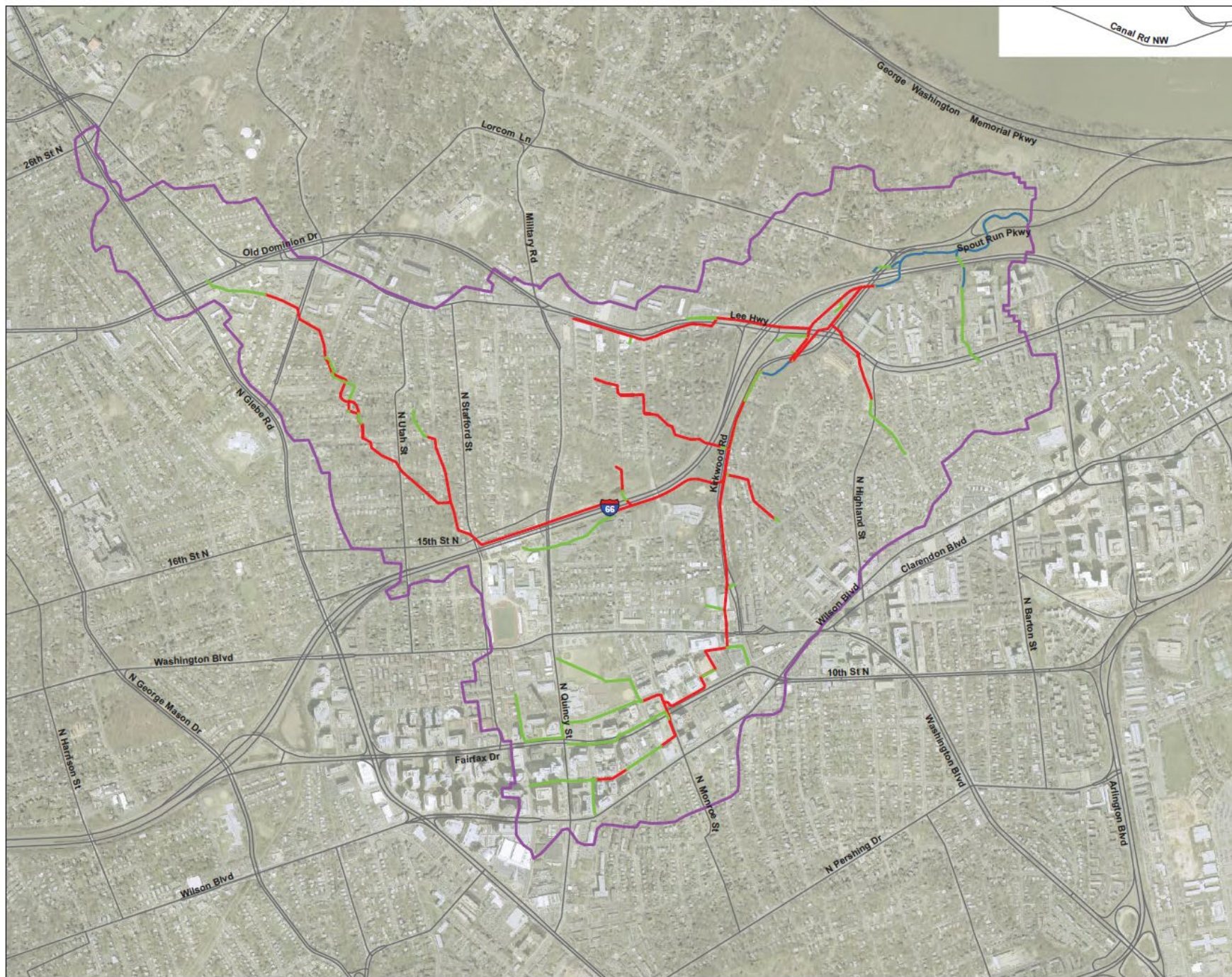
# Riskfactor.com

Riskfactor.com provides risk assessment information to the public and is being promoted by major real estate listing websites such as Redfin, Zillow, etc.

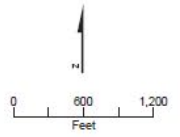




# Capacity Analysis from SW Masterplan/ Capacity Study



- Legend**
- Modeled Stormwater Mains with Recommended Additional Capacity
  - Modeled Stormwater Mains with Sufficient Existing Capacity
  - Streams
  - Roads
  - Modeled (Revised) Watershed Boundary



**Note:**  
Langston Blvd.  
and I-66 are  
VDOT  
maintained  
roads

**FIGURE 20**  
Recommended Additional Capacity  
for the 10-yr, 24-hr Storm  
Spout Run Watershed  
Arlington County Storm Capacity Analysis

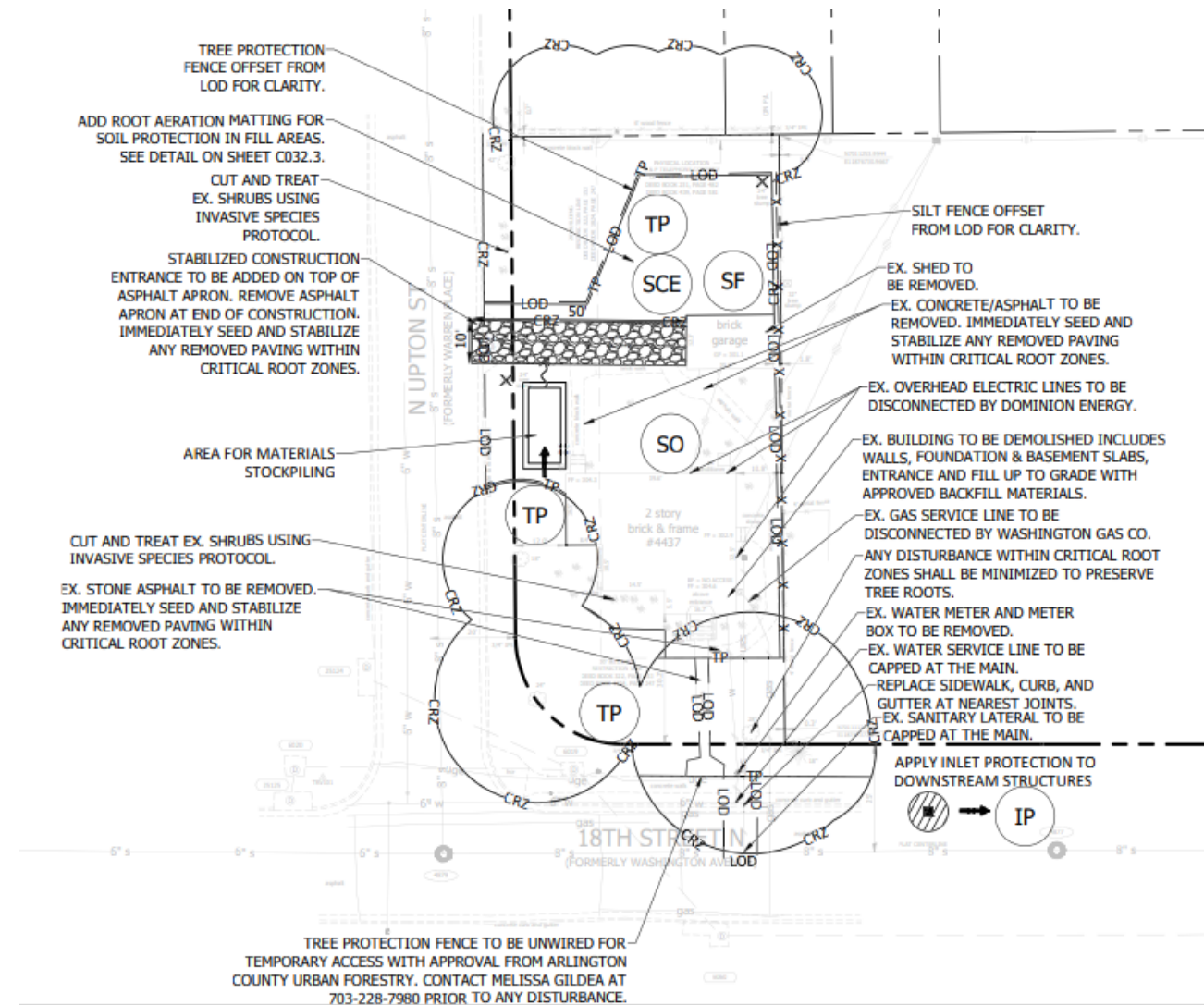


# Plans for Acquired properties – Guiding Principles

- County will be developing a schedule for maintenance and landscaping of the properties, and will engage with the community about this:
  - Landscaping (Natives v. Lawn type non-native)
  - Mowing – approximately every 2 weeks
  - Fencing (fences along perimeter lot lines to remain, internal fences may be removed)
  - Maintenance (i.e. snow removal)
- The County will also engage with neighboring property owners prior to, and during, the process of the home demolition. There are plans and permits required for removing the home, so this process takes some time.
- **Properties will be maintained for overland relief in a an undeveloped, mostly natural condition, but will not be used as active recreation areas.**

# Plans for Acquired properties – Guiding Principles

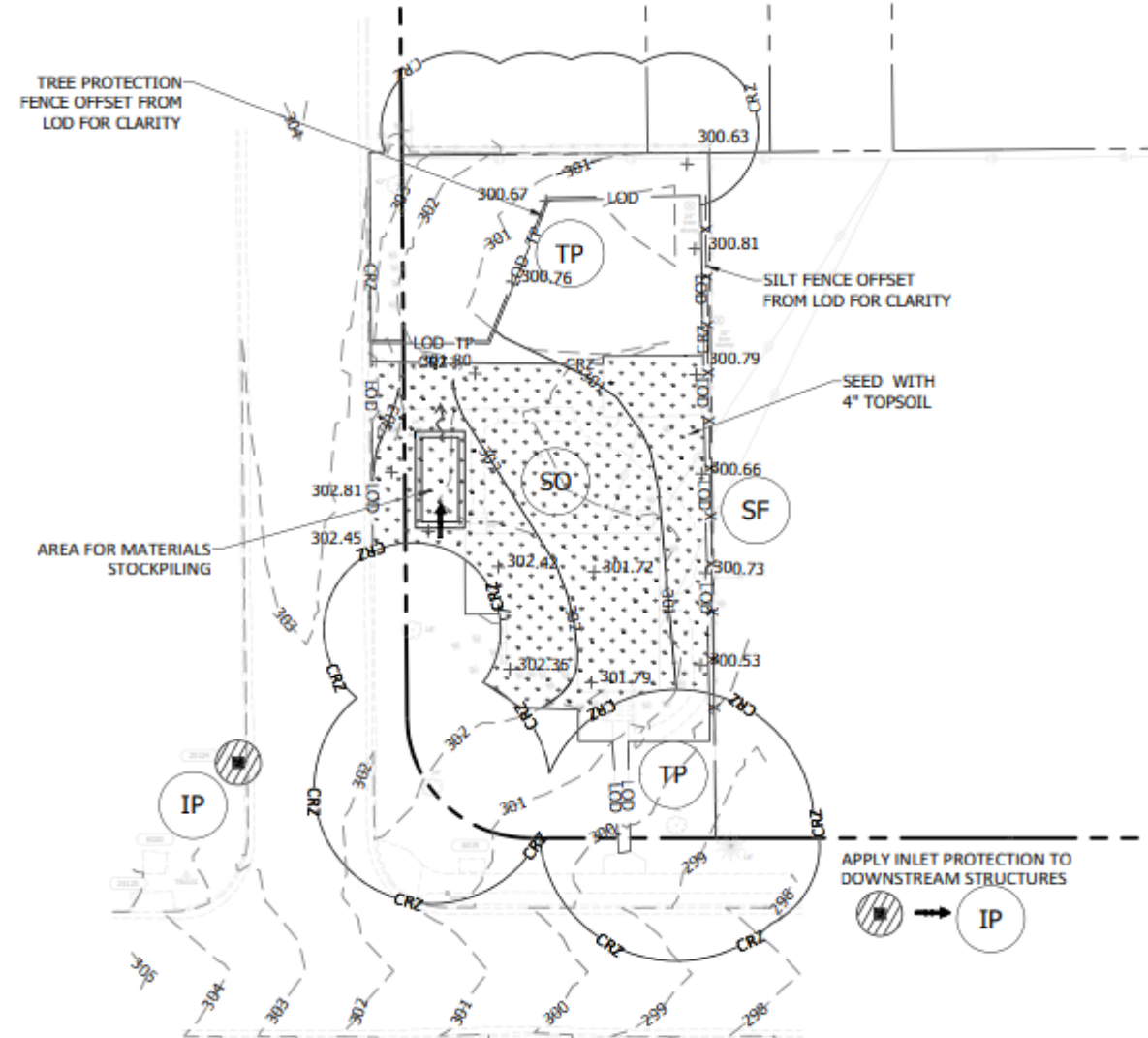
- Goal is to **demolish** houses as soon as possible after acquisition.
- Removal of hazardous materials from structures may be necessary (i.e. asbestos-containing materials or lead-based paints).
  - These removals will occur prior to demolition by qualified personnel. Properties will be sealed as required during the removal process.





# Plans for Acquired properties – Guiding Principles

- Minimal Disturbance and Tree Removals
  - Only disturb area required for home demolition
- Post-demolition, properties will be graded to direct stormwater runoff towards the right-of-way and existing storm conveyance systems to the maximum extent practicable.
- Two options for final land cover plantings:
  - All native (may be taller than 12")
  - Lawn like (not natives)



# Reminder - FAQs Available Online

**How do I know if the County is interested in purchasing my property?** *The County's real estate team will contact homeowners about potential property acquisitions by letter. Properties will be considered based on the degree that they can be used by the County for the purposes noted above and the flood risk present in specific areas of the watershed based on historic development patterns, topography, etc.*

**What will the purchased properties be used for?** *Properties acquired through voluntary acquisitions will be used to:*

- *re-establish overland relief flow paths for water during large storm events for flood mitigation,*
- *provide access to existing stormwater infrastructure to conduct necessary maintenance or upgrades,*
- *locate future stormwater infrastructure stormwater detention facilities and/or water quality facilities*

[Property Acquisition FAQs](#)

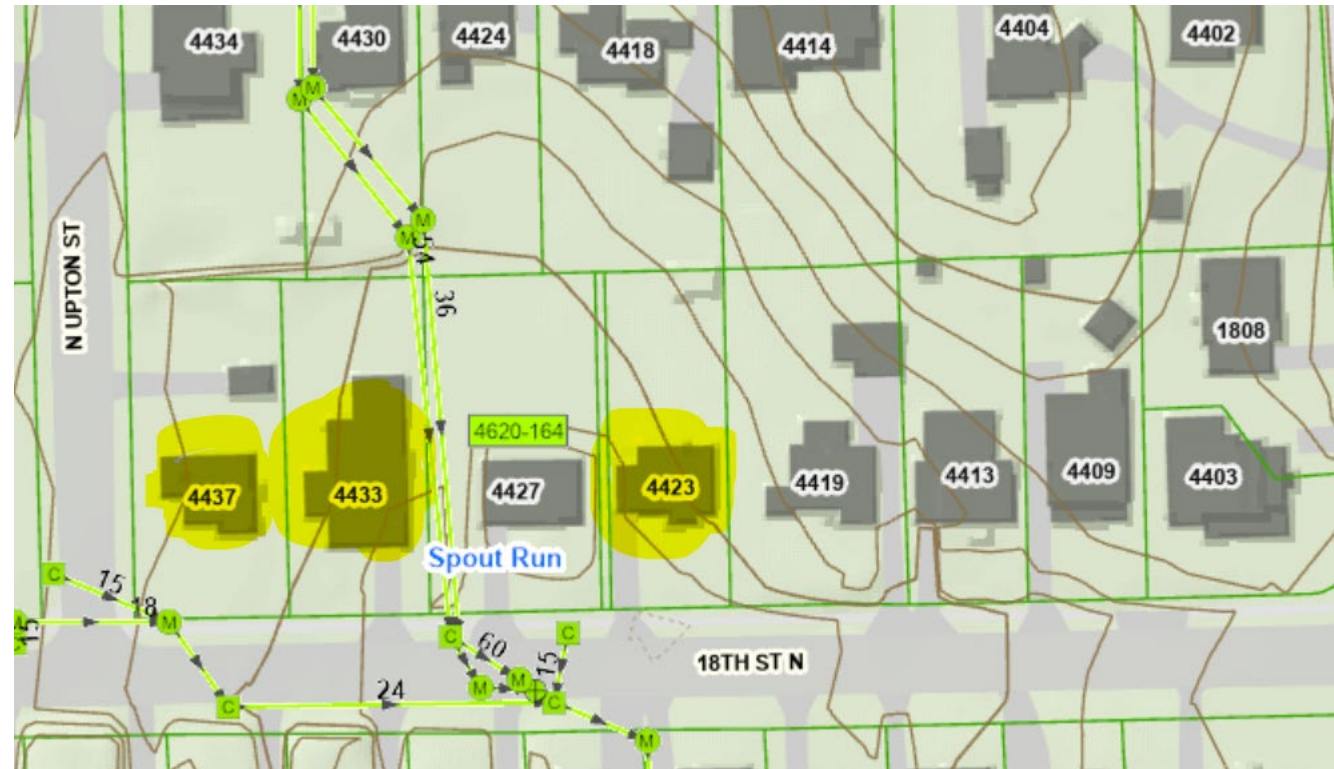
# Plans for Acquired properties – Specifics

- Currently working on:
  - On-boarding Demolition Contractors (new contract going to Board in September)
  - Obtaining additional task orders for mowing and maintenance
  - Topographic Surveys
  - Hazardous Materials Surveys (for Asbestos)
    - Asbestos containing-materials were found at 4437 18<sup>th</sup> St.N -- May be present in other acquired properties
  - Demolition Plans
- Determination of Final land cover plants (see additional slides):
  - All native (may be taller than 12")
  - Lawn like (non-natives)
  - Combination?



# Plans for Acquired properties – Specifics

- Minimal Disturbance and Tree Removals
  - Only what is required for demolition
- Post-demolition, properties will be graded to direct stormwater runoff towards the right-of-way and existing storm conveyance systems to the maximum extent practicable.
- Two Options for Final land cover plantings:
  - All native (may be taller than 12")
  - Lawn like (not natives)



# 4437 18th St N Property

- County to provide mowing and yard upkeep for the property pre- and post-demolition.
- Interior cleaning and abatement work required per hazardous materials survey report.
- Permitting for demolition is pending.
- Structure to be abated and demolished, awaiting on contractor onboarding.
- All utilities to be disconnected.
- Demolition to begin following LDA approval.
- Seeding to take place after demolition (may need to wait for appropriate planting seasons for permanent species).





# 4433 18th St N Property

- County to provide mowing and yard upkeep for the property pre- and post-demolition (after vacation). Prior to vacation, property owner maintains.
- Interior cleaning and abatement work pending completion of hazardous materials survey report.
- Permitting for demolition is pending.
- Structure to be abated and demolished, awaiting on contractor onboarding.
- All utilities to be disconnected.
- Demolition to begin following LDA permitting.
- Seeding to take place just after demolition (may need to wait for appropriate planting seasons for permanent species).





# 4423 18th St N Property

- County to provide mowing and yard upkeep for the property pre- and post-demolition.
- Interior cleaning and abatement work pending completion of hazardous materials survey report.
- Permitting for demolition is pending.
- Structure to be abated and demolished, awaiting on contractor onboarding.
- All utilities to be disconnected.
- Demolition to begin following LDA permitting.
- Seeding to take place just after demolition (may need to wait for appropriate planting seasons for permanent species).





# Phases of the Project

## ■ Phase I : Abatement and Demolition

- ✓ Remove all hazardous materials from site
- ✓ Demolition of the house
- ✓ Apply seed to the disturbed area
- ✓ Restore or replace all fencing or screening

## ■ Phase II: No schedule is determined yet

- ✓ Apply methods to address stormwater system capacity and overland relief
- ✓ Determine property use.





# What to expect during construction?



Residents should expect inconveniences such as dust, noise, debris



Temporary parking restrictions



Increase in traffic & Sidewalk detours



Contractor crews will be working through the area performing their tasks



Stockpiling materials & equipment will be onsite or along property frontage



Some tree removals

# Groundcover: Lawns, Natives, Some of Each?

- Natives are taller than 12" and harder to establish
- Lawn type plants are not natives
- Could use some of each.



Carex pensylvanica  
(Pennsylvania sedge)



Carex blanda  
(Common Wood sedge)



Chrysogonum  
virginianum  
(Green and gold)



Phlox subulata  
(Creeping or  
moss phlox)



Trifolium repens  
(White clover)  
Non-native

# Questions?

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Who do I need to contact if I have a question during construction?

**Project Managers**

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**Communications Manager**

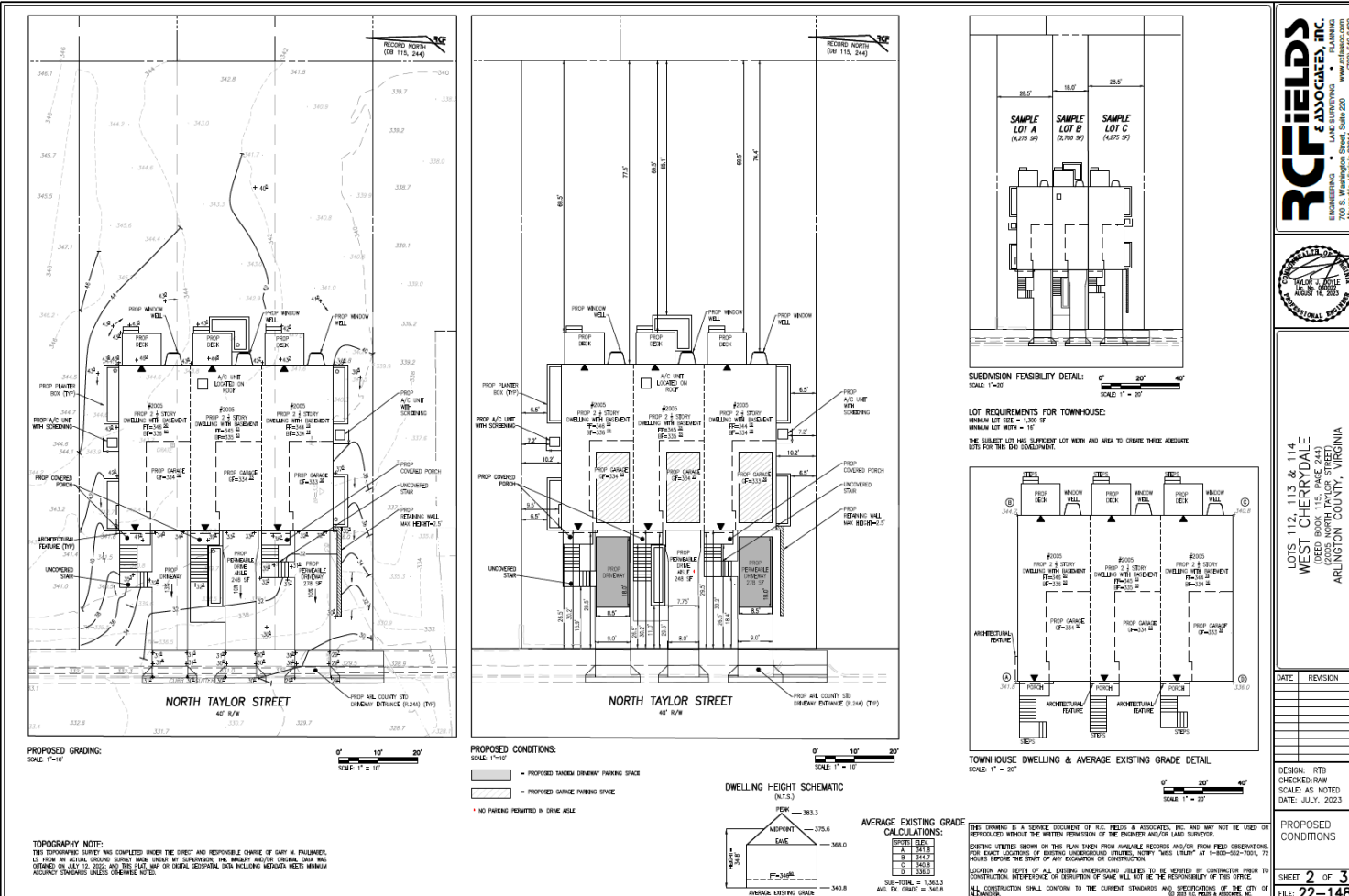
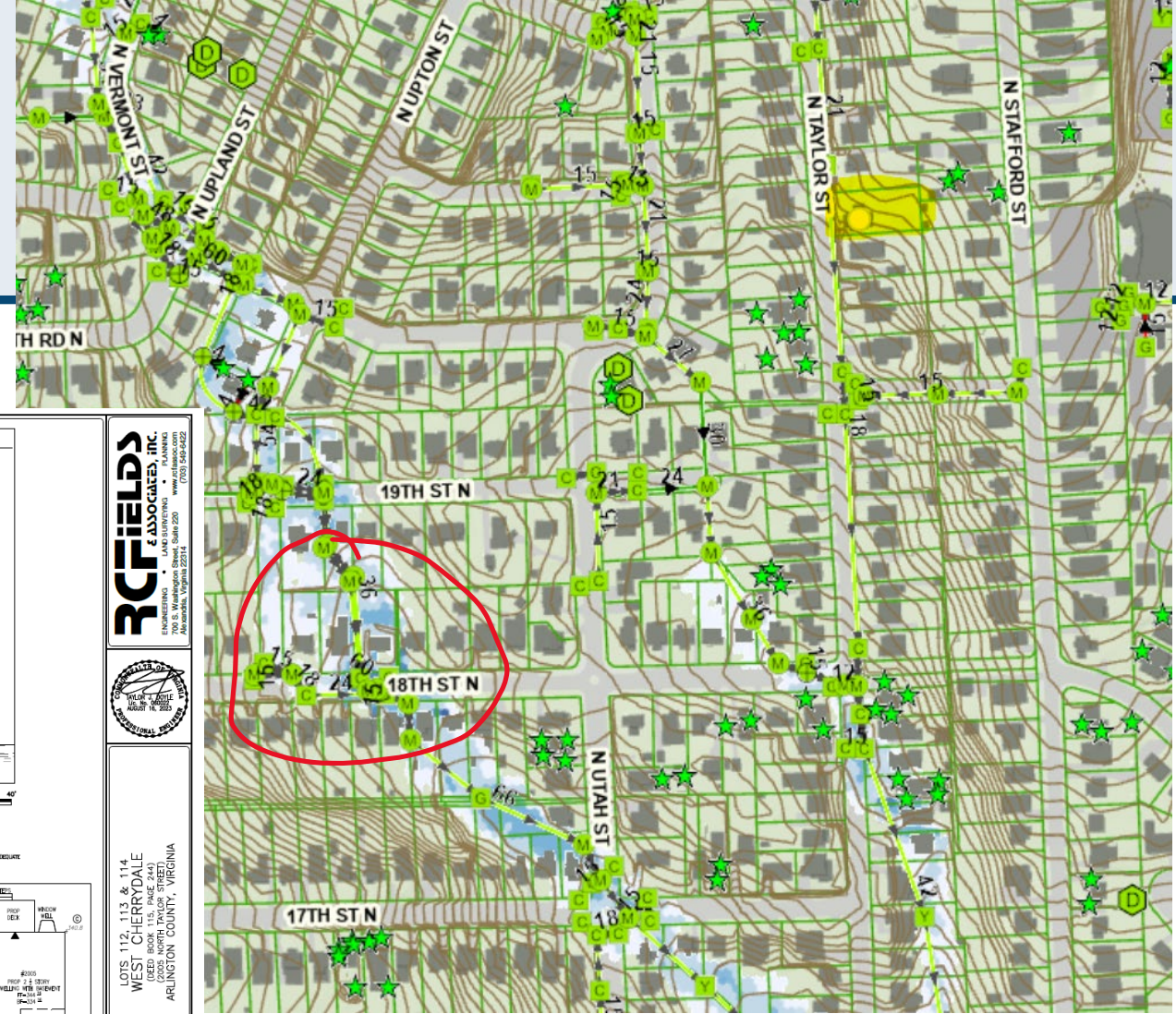
Aileen Winquist

[awinquist@arlingtonva.us](mailto:awinquist@arlingtonva.us)



# Missing Middle

No LDA submittal yet – only zoning approval

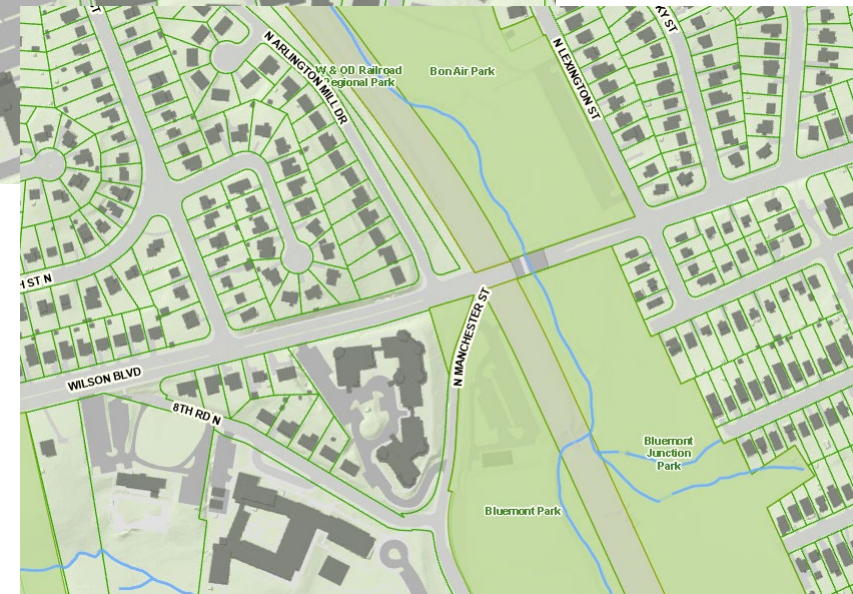


Property at 205 N Taylor does **NOT** drain to acquired properties on 18<sup>th</sup> St. N



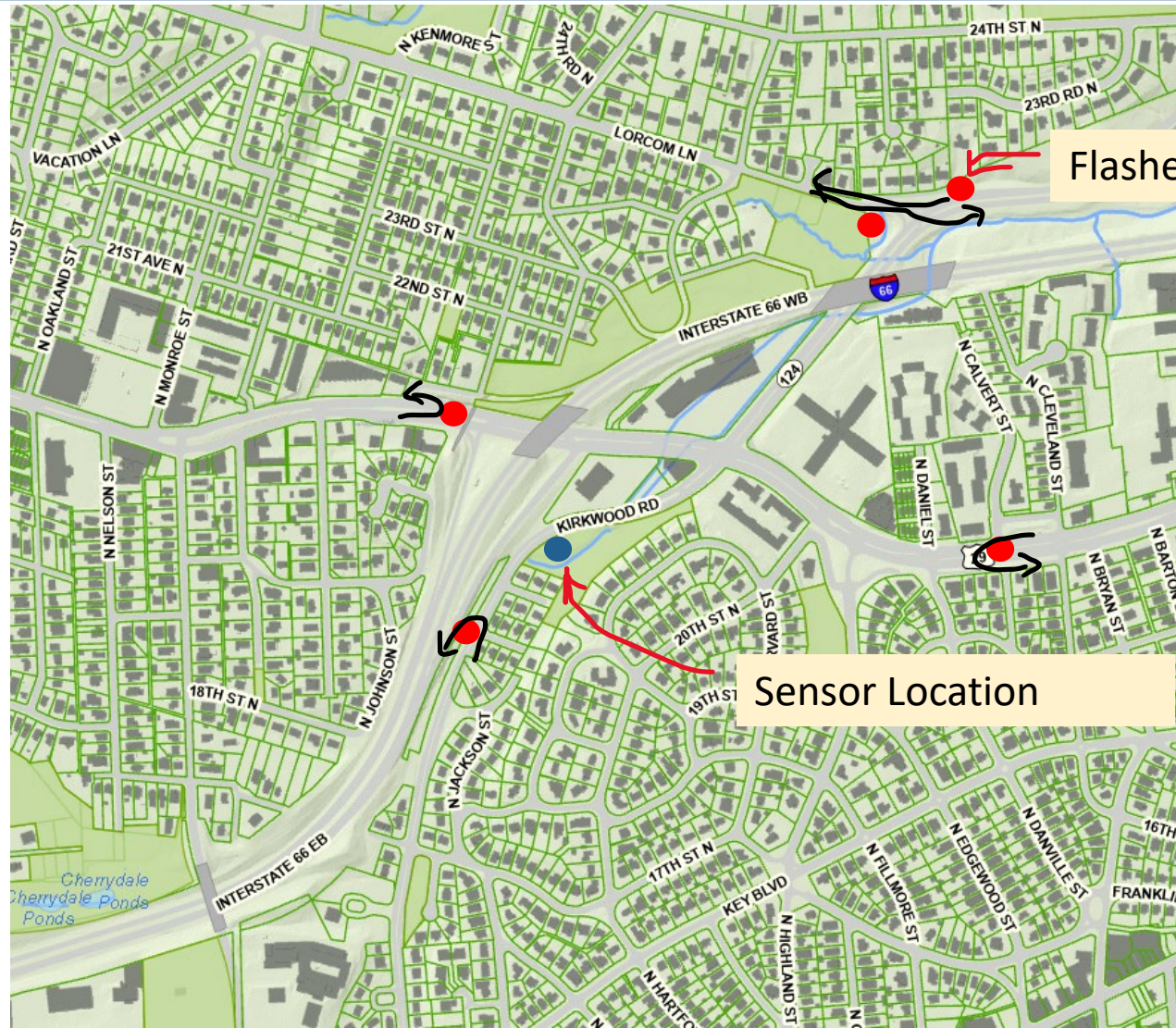
# High Water Detection Sensors

- Currently installed at two locations:
  - Columbia Pike at Greenbrier
  - Wilson Boulevard at Bon Aire Park
- Third location in Spout Run in design – currently under review by VDOT
  - Kirkwood and Langston
- Warning lights engaged when water level reaches approximately 6 inches





# High Water Detection Sensors



Flasher location

Sensor Location



A Multi-prong approach is proposed. There may be construction projects to improve and maintain our stormwater system depending on when and where right of way is acquired via the Voluntary property acquisition program.



# CIP Funding for Spout Run

## Adopted FY 23 – FY 32 CIP

Opportunities for input into Upcoming CIP will be provided later this fall – not as part of PLB

Cost Center	Program Name	Phase	Project Name	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	10 Year Total
47222	System Expansion/Capacity	Land Acquisition	Spout Run Watershed Capacity Improvements	5,000	7,000	5,150	5,150	5,300	5,300	4,360	3,270	3,360	3,360	<b>47,250</b>
47222	System Expansion/Capacity	Design	Spout Run Watershed Capacity Improvements	150	150	155	155	160	160	165	165	170	170	<b>1,600</b>
47222	System Expansion/Capacity	Construction	Spout Run Watershed Capacity Improvements	-	6,295	3,180	3,090	3,180	3,180	2,475	2,570	2,645	1,525	<b>28,140</b>
<b>13. Spout Run Watershed Capacity Improvements</b>				<b>5,150</b>	<b>13,445</b>	<b>8,485</b>	<b>8,395</b>	<b>8,640</b>	<b>8,640</b>	<b>7,000</b>	<b>6,005</b>	<b>6,175</b>	<b>5,055</b>	<b>76,990</b>

**NOTE: Proposed funding is NOT for improvements in the Langston Blvd. Planning corridor, but is for downstream flooding mitigation.**

\* Property Acquisition will be phased and prioritized over multiple CIP cycles. There is some flexibility in project design, acquisition and construction categories.

Note: The proposed level of funding for this projects begins to approach the funding levels for stormwater that sister jurisdictions already provide.

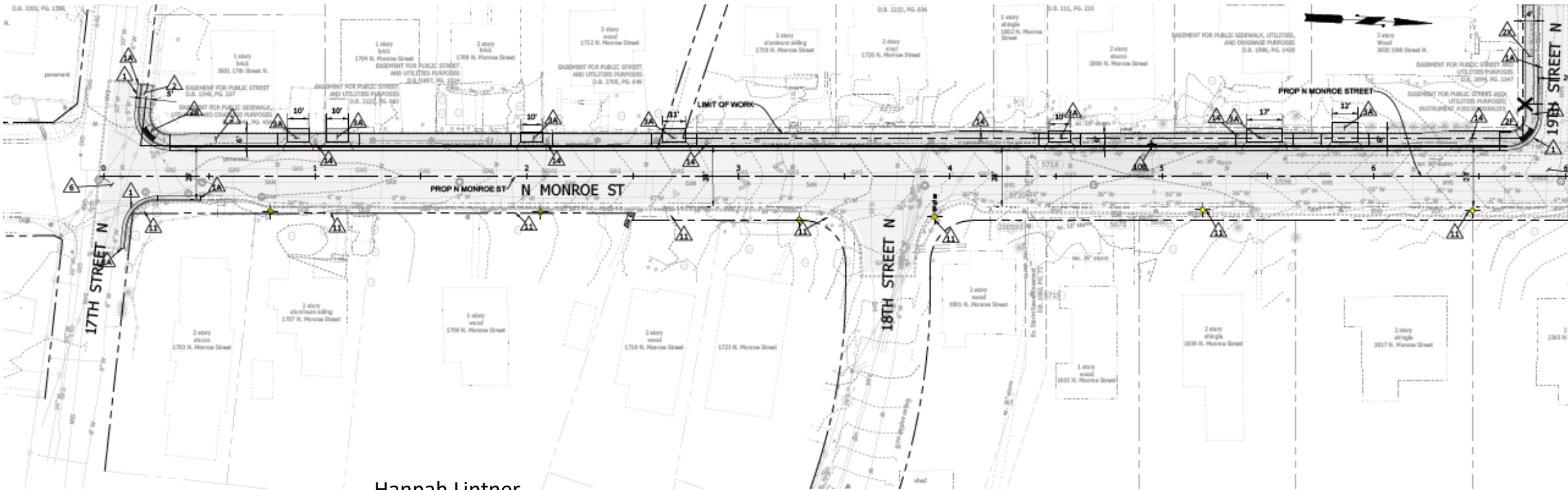


# Arlington Neighborhoods Project Z290 Update - Sidewalks on Monroe St.

Proceeding with 90% Plans – still resolving several issues (not related to stormwater)

## Lower Spout Run including property on N 18th St in Cherrydale

No Additional contact with property owner, who has stated they will rebuild and elevate home  
Project to proceed without modifying storm sewers in any way – sidewalks only



Hannah Lintner  
Project Manager  
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703-228-3819



## Updates on Other Stormwater Initiatives

- Plan Langston Boulevard (PLB)
- FEMA FIRM update and Arlington County Floodplain Ordinance update
- Stormwater Utility Update
- RAMP update
- Flood Resilient Design and Construction Manual

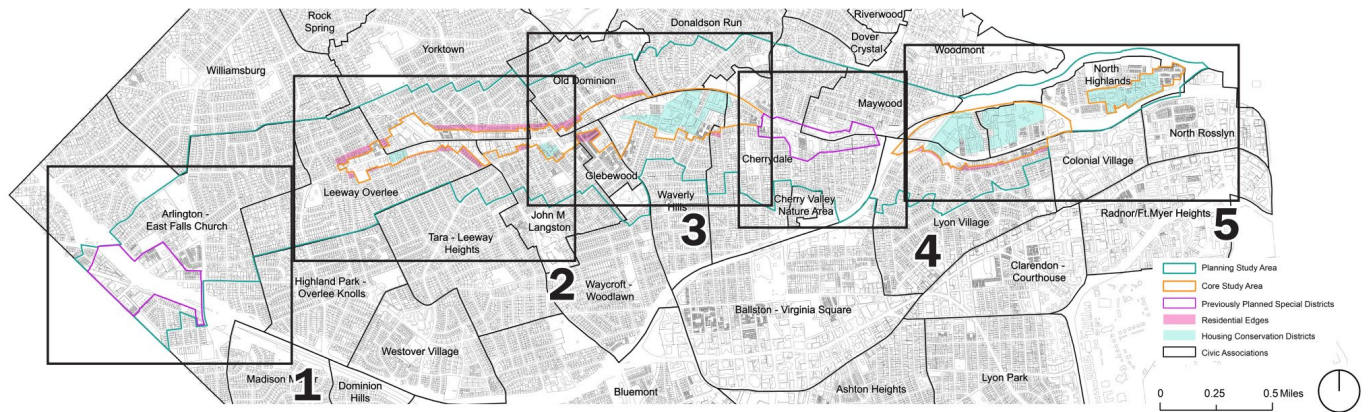


# Plan Langston Boulevard Engagement Draft Area Plan

[Draft Langston Boulevard Area Plan](#) was shared in June. Team held community engagement sessions in July. Based on community and commission input to date, the draft plan provides a vision, goals, policies, and implementation strategies to guide long-term public and private investment on the Langston Boulevard corridor.

## County Board Work Session Sept 12, 3-5 PM

Opportunities for input into Upcoming CIP will be provided later this fall – not as part of PLB. (CIP process includes all areas of County not just Langston Blvd. corridor.)



**AREA 1**  
Arlington - East Falls Church

**AREA 2**  
John M. Langston  
Yorktown  
Tara Leeway Heights  
Leeway Overlee

**AREA 3**  
Waverly Hills  
Donaldson Run  
Old Dominion  
GlebeWood  
Waycroft Woodlawn

**AREA 4**  
Cherrydale  
Maywood

**AREA 5**  
North Highlands  
Lyon Village

## CONTACT US

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**Coordinator**  
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703-228-3691

**Communications & Engagement**  
Rachel LaPiana  
703-228-0059



## Floodplain Ordinance Update

- Required due to FIRM updates
- Draft has been approved by DCR
- Must conform to model ordinance developed by DCR and FEMA
- Board will vote on the new ordinance in October (see next slide)

Overall, proposed changes are minor and almost all are mandated by FEMA as updated to the National Flood Insurance Program





## **Schedule for updated FIRM and Floodplain Ordinance:**

Revised FIRM issued: September 18, 2020 and April 29, 2022

Letter of Final Determination issued: May 16, 2023

Request to Advertise to be Authorized at Board Meeting: September 23, 2023

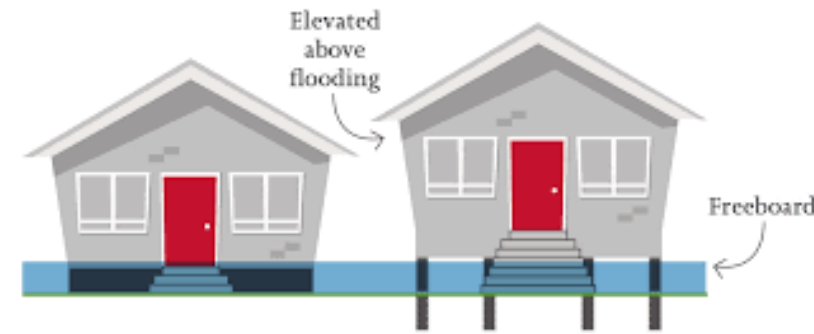
Adoption of Floodplain Ordinance at Board Meeting: October 14, 2023

Effective Date of new FIRM and Floodplain Ordinance: November 16, 2023

There are no waivers, extensions, exceptions to this schedule. Schedule is mandated by FEMA.

# Proposed changes to Floodplain Ordinance

- Adopts the new FIRM
- Increase in required freeboard (distance above base flood elevation) from 12 to 18 inches, or
- Buildings in 100-year floodplain must be watertight 2 feet above the base flood elevation (previous requirement 1 foot)
- Accessory structures can not be larger than 600 feet
- No emergency service records, medical records or government records can be stored in 500 year floodplain



Also enumerates duties of the Floodplain Administrator in great detail and codifies methods for use and interpretation of the FIRM

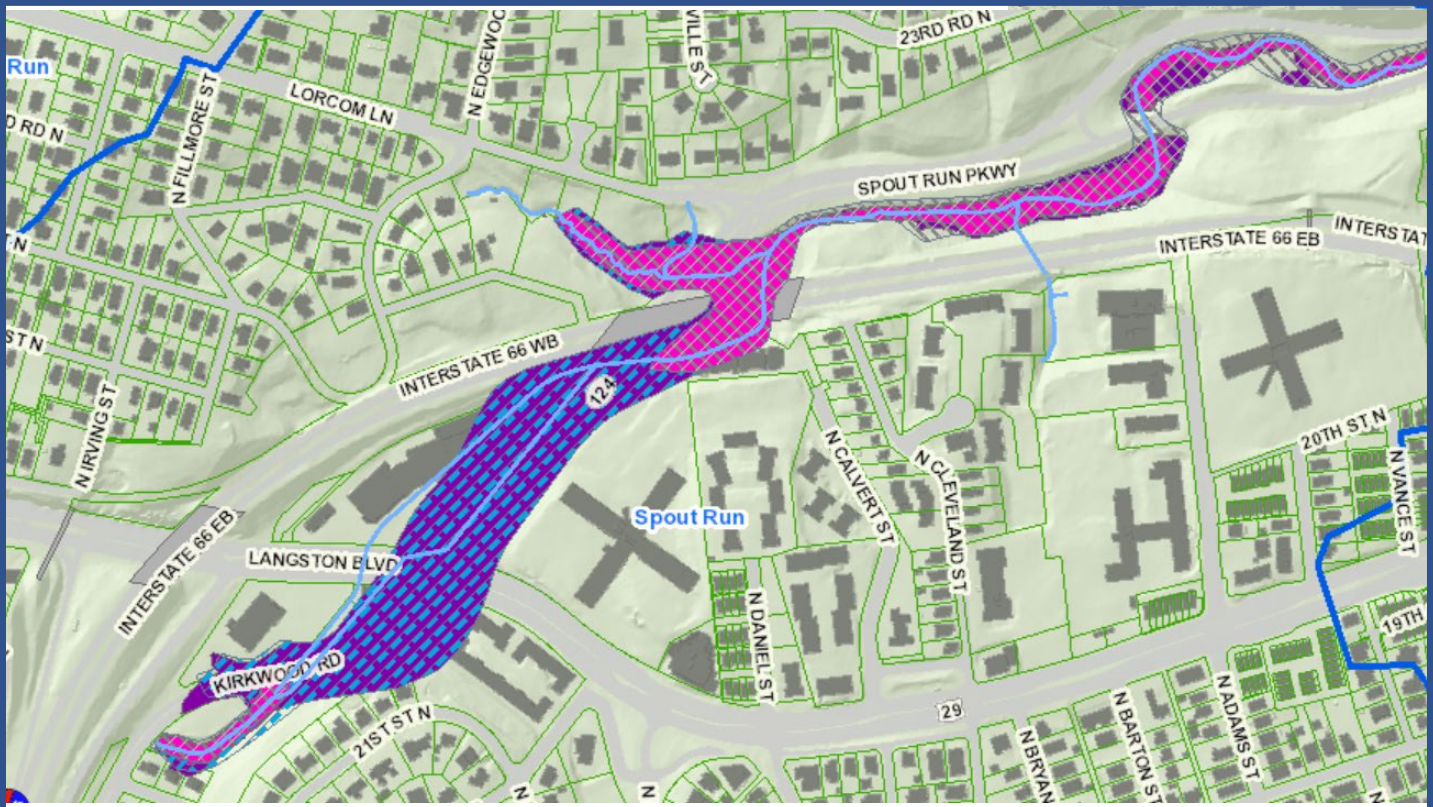
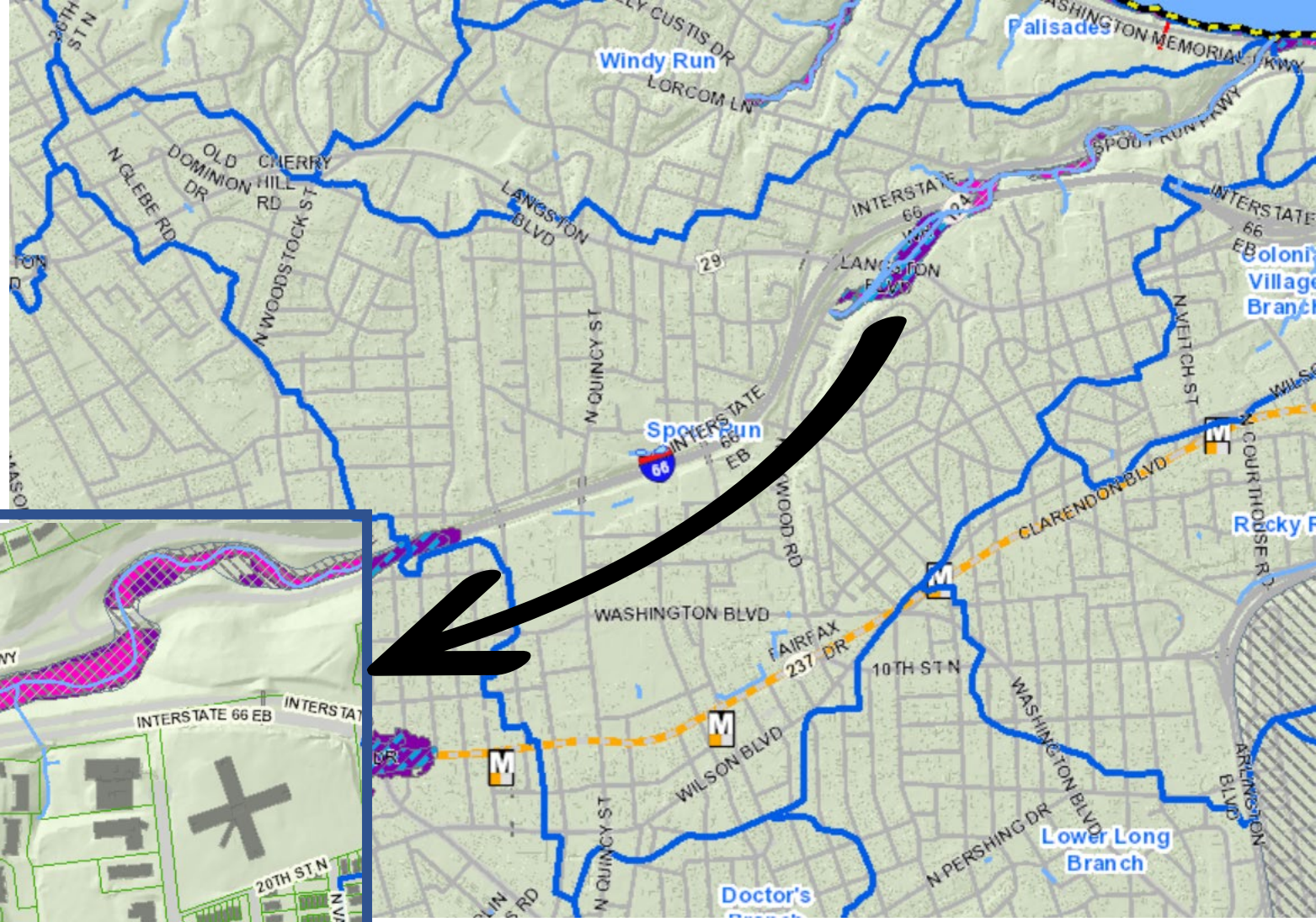


# FEMA Floodplain Map Update

Overall view of Spout Run watershed with floodplains



Detail of floodplains



In general, Floodplains and changes to FIRM and the Floodplain Ordinance have minimal impacts on the Spout Run watershed

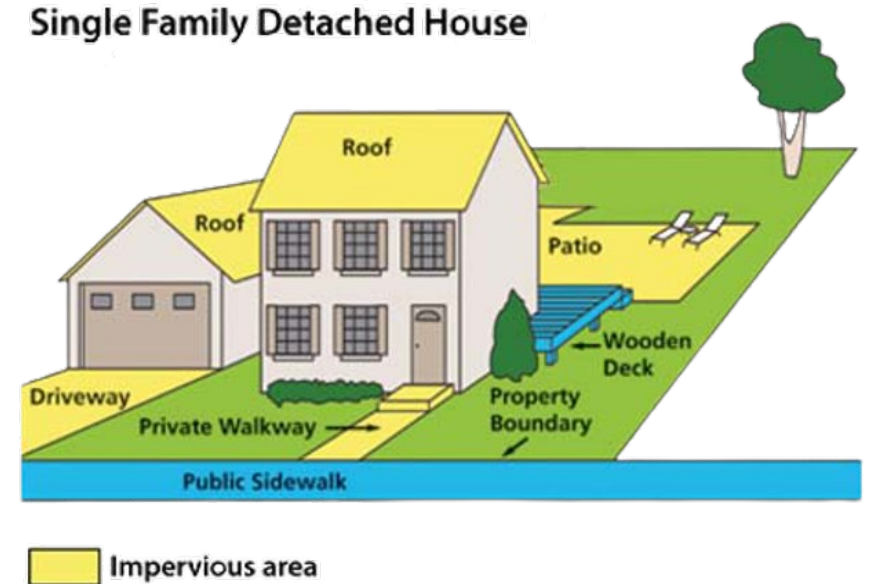






# Stormwater Utility

- County is transitioning to a stormwater utility for funding the stormwater program
- Currently, property owners pay a stormwater tax based on property assessment. Stormwater utility fee would instead be based on impervious cover on the lot
- Credit would be offered for some actions taken to reduce runoff. Apply for credits Nov 1, 2023 – Jan 15, 2024
- County Board will vote on rate in November.
- More information and resources on the web page



# Risk Assessment and Management Plan (RAMP)

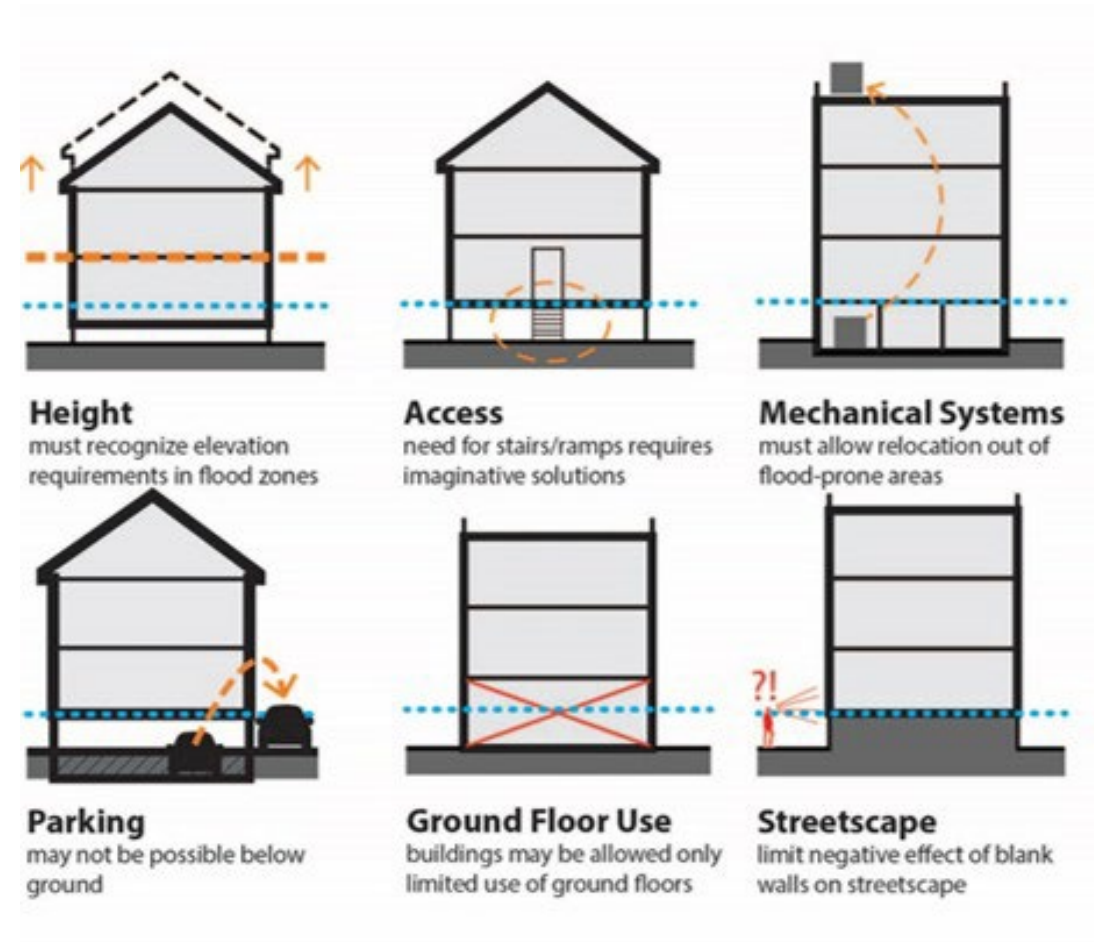
- Will deliver updated rainfall curves, 10-year design standard and 2040 and 2070 climate projections
- The RAMP maps critical community facilities in all sectors, to support vulnerability and risk assessments, and allow mitigation planning.
- Map County's "urban" floodplains (outside FEMA floodplains)
- Measures both Flooding and Sea Level Rise/Storm Surge Risks
- Define and value risks from flooding
- Informs flood resilient design and construction standards





# Flood Resilient Design and Construction

- Released RFP for development of a Flood Resilient Design and Construction Manual
- Would be voluntary at first, but may become required in flood vulnerable areas in the future



# Path to a Flood Resilient Spout Run

**Questions?**



## Overland Relief/Property Acquisition, Esp. Spout Run and Lubber Run watersheds.

[FAQ: Voluntary Property Acquisition to Reduce Flood Risk – Official Website of Arlington County Virginia Government \(arlingtonva.us\)](https://www.arlingtonva.us/government-services/faq-voluntary-property-acquisition-to-reduce-flood-risk)

### *Why is the County investing so much in flood mitigation?*

*In recent years, Arlington and the surrounding region has experienced more frequent, high-intensity storms which have caused significant flooding in areas throughout Arlington.*

*To respond to climate change and increasingly intense storms, Arlington has shifted the stormwater management program to help address this challenge with "Flood Resilient Arlington." In November 2020, Arlington County voters approved a stormwater bond referendum to help fund watershed-scale projects and local capacity improvements and expansions to mitigate high risk flood areas, as part of a path toward a Flood Resilient Arlington.*

### *What is Flood Resilient Arlington?*

*In response to recent flooding challenges, Arlington has shifted the stormwater program to have more of a resilience focus. This includes:*

- Conducting detailed analysis of the areas experiencing flooding and with the Risk Assessment and Management Plan (RAMP) we are updating the design standards for development, rainfall curves, and creating risk assessments for many areas of the County.*
- Increased investment in the stormwater system.*
- Expanding the type and location of capacity projects moving beyond pipe upgrades to detention vaults, pumping stations, land acquisition for flood mitigation etc.*
- Increased outreach to property owners to take steps to floodproof their properties.*
- Increased requirements for development projects to require more quantity controls.*



# Overland Relief/Property Acquisition, Esp. Spout Run and Lubber Run watersheds.

[FAQ: Voluntary Property Acquisition to Reduce Flood Risk – Official Website of Arlington County Virginia Government \(arlingtonva.us\)](#)

## How does voluntary property acquisition work? —

*Voluntary property acquisition is a long-term approach that will help provide overall watershed improvements to critical watershed areas. The County plans to work with homeowners on a voluntary basis to acquire subject properties by negotiated purchase and sale agreements.*

## Why purchase properties? Can the County make improvements to the stormwater system instead? —

*The County is looking at multiple solutions to help alleviate flood risk. Through Flood Resilient Arlington, we are:*

- *Exploring new locations for stormwater facilities on public land*
- *Pursuing a blended engineering approach to provide for flood mitigation to include increased system capacity, property acquisition, and new types of facilities (i.e., stormwater detention vaults)*
- *Working with homeowners on voluntary property acquisition for flood mitigation*
- *Increasing floodproofing outreach to property owners*
- *Solutions to reduce flood risk may include a combination of several strategies as it is dependent on locations.*
- *In many locations, the County doesn't have the property rights or access to increase pipe sizes or add additional stormwater pipes.*
- *Major civil drainage construction is typically only installed at the time subdivisions are built, before structures, roadways, and other utilities are installed and put into active use.*

## What will properties purchased by the County be used for? —

*Properties acquired through voluntary acquisitions will be used for the following purposes:*

- *Re-establishing overland relief flow paths for water during large storm events for flood mitigation.*
- *Provide access to existing stormwater infrastructure to conduct necessary maintenance or upgrades*
- *Location of future stormwater infrastructure*
- *Construction of stormwater detention facilities*
- *Potential for co-locating water quality and stormwater capacity projects*

# Overland Relief/Property Acquisition, Esp. Spout Run and Lubber Run watersheds.

[FAQ: Voluntary Property Acquisition to Reduce Flood Risk – Official Website of Arlington County Virginia Government \(arlingtonva.us\)](#)

## *How do I know if I'm in a flood zone?*

- *All properties have some level of vulnerability and as a property owner, you should be aware of your flood risk. Knowing your flood risk is the first step to flood prevention. To learn more, visit Risk Factor (previously known as Flood Factor) and search for your property at [www.riskfactor.com](http://www.riskfactor.com).*
- *Formal delineated, mapped floodplains are established by a formal process with FEMA; Arlington has such zones along Four Mile Run, but currently not within developed neighborhoods in some of the inland watersheds.*

## *What areas in the County are being prioritized?*

*Five critical watersheds are being prioritized for improvements because of repetitive flooding in those areas.*

- *The watersheds are Spout Run, Lubber Run, Crossman Run, Torreyson Run and Westover Branch.*
- *The Spout Run watershed has the engineering study process and potential solutions at a more complete stage currently, so it is anticipated this watershed may be the first one for stormwater investments to be made as part of the CIP.*

## *What can I do to help reduce my risk of flooding?*

### ***Floodproofing***

*The County encourages homeowners to evaluate flooding risks on their property and take action where possible. Arlington offers a [home floodproofing checklist](#). Frequently vulnerable areas: below-grade basement steps, window wells and driveways that slope down toward a house.*

*Residents should ask their insurance agent about flood insurance and about a sewer backup endorsement to any homeowner's or renter's policy. Most commercially available policies do not cover damage within basements and sub-grade structures. Homeowners who have experienced sewer backup should have a plumber determine if they need a backwater valve on their sanitary sewer and/or a sump pump.*