

Path to Flood Resilience Torreyson Run

Flood Resilient Arlington

October 18, 2023



ARLINGTON
VIRGINIA

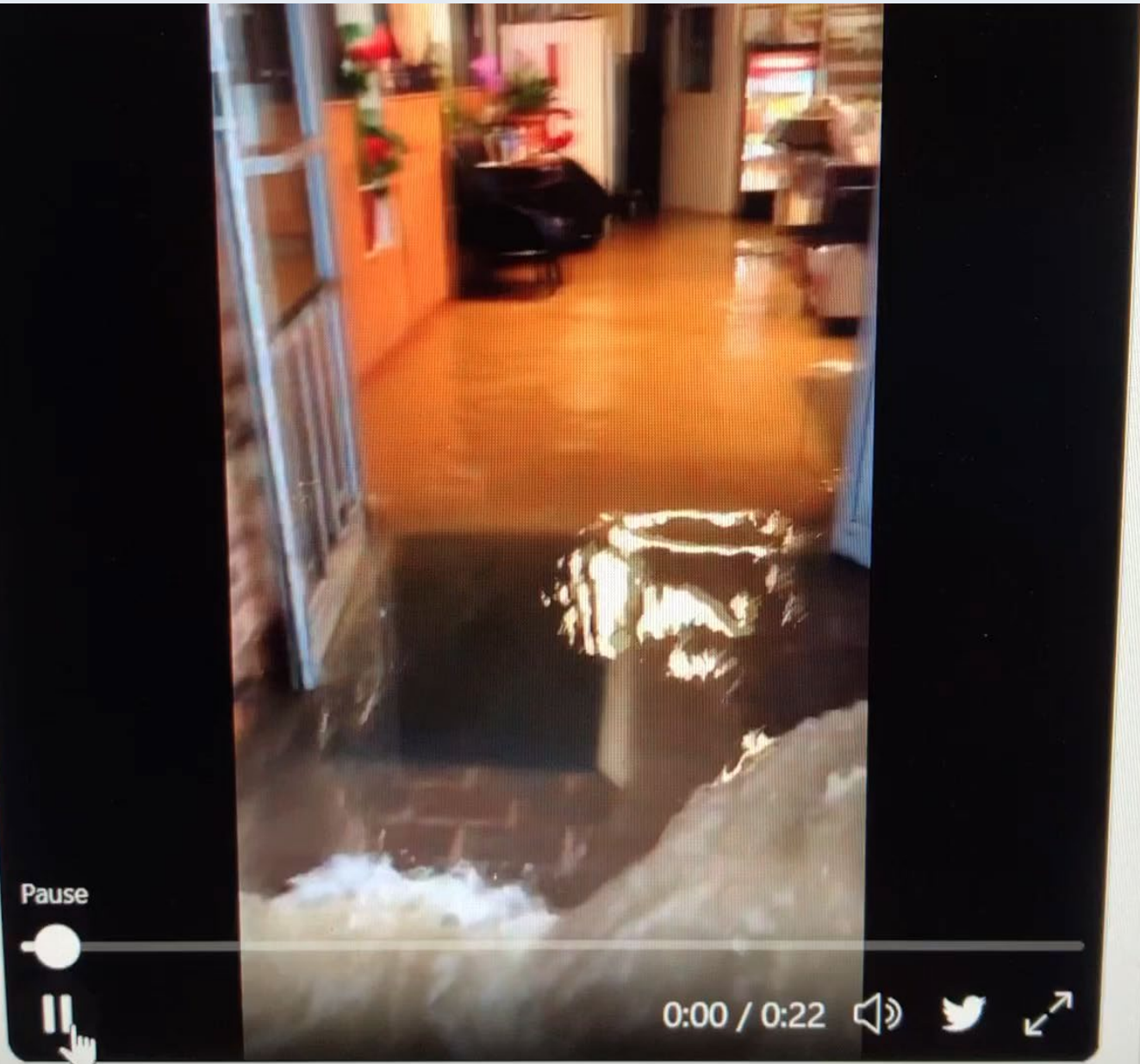


Agenda

- **Brief Overview of Flood Resilient Arlington**
 - Causes of Flooding and Overland Relief
 - Know Your Flood Risk
- **Progress in Torreyson Run Watershed**
 - Cardinal School Vault – Completed
 - Athletic Fields open
 - Still a few punchlist items
 - N. Lexington Improvements completed
 - 5840 18th St. N
 - 4 Additional Projects Initiated
- **CIP Funding**
- **Brief Updates on other Initiatives**
 - Floodplain Maps and Ordinance
 - HWD/Flow Monitoring Program
 - RAMP
 - Stormwater Utility
 - Ballston Pond
- **Questions**

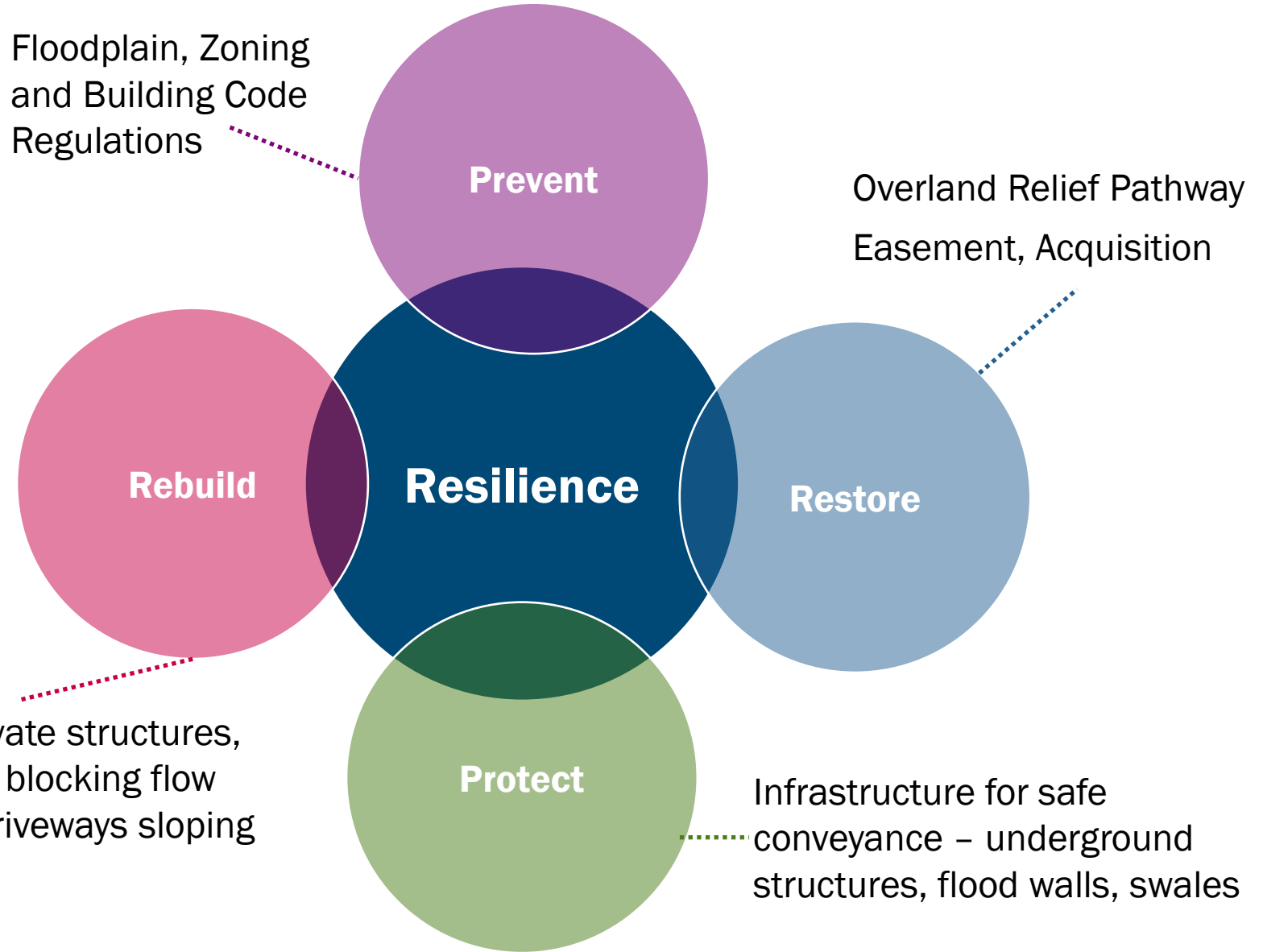
14th St.
Flooding





FY22 Quarter 2 Memo.pdf -

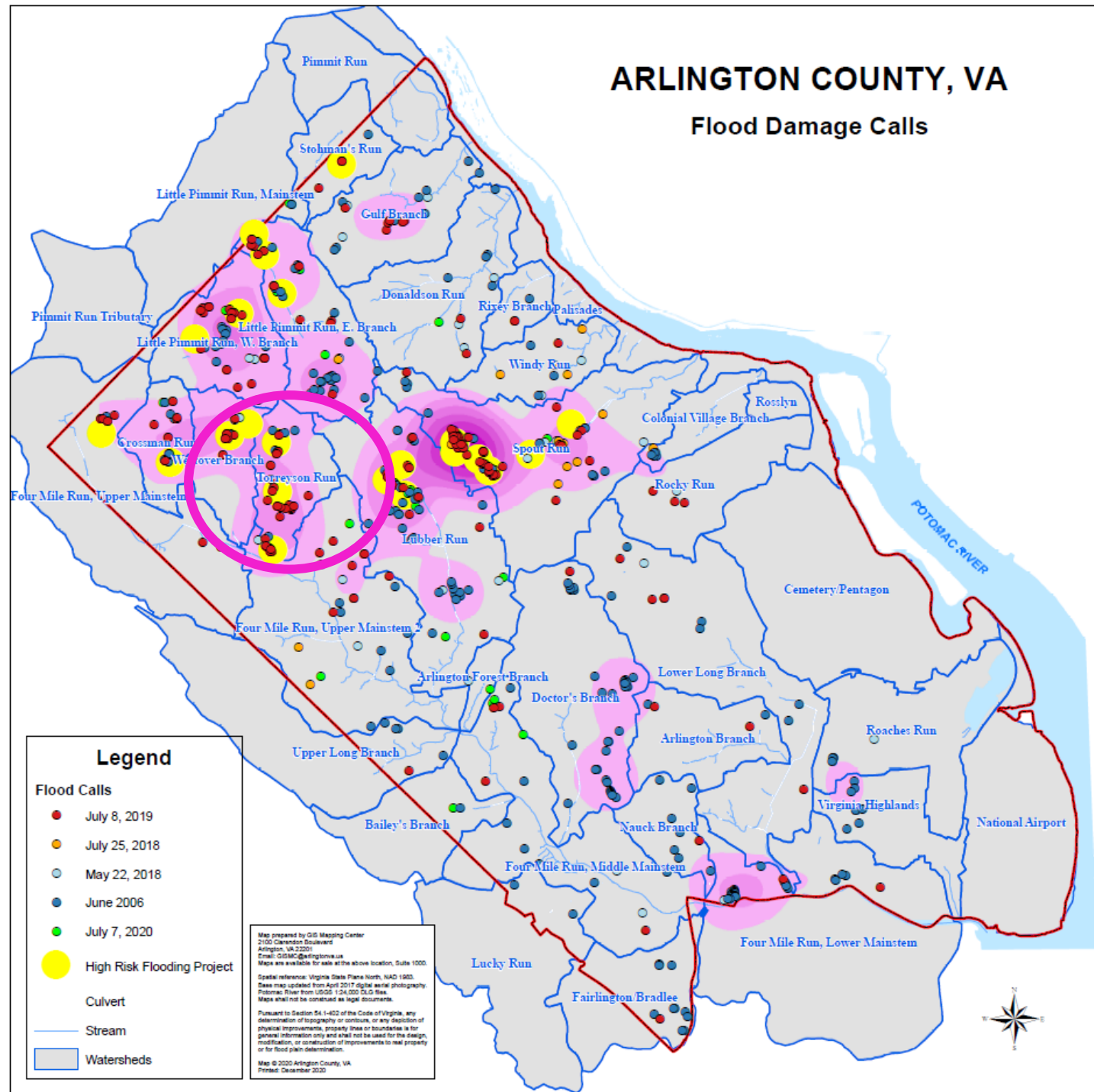
Balancing Stormwater Priorities and Issues



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

Flood Resilient Arlington Overview

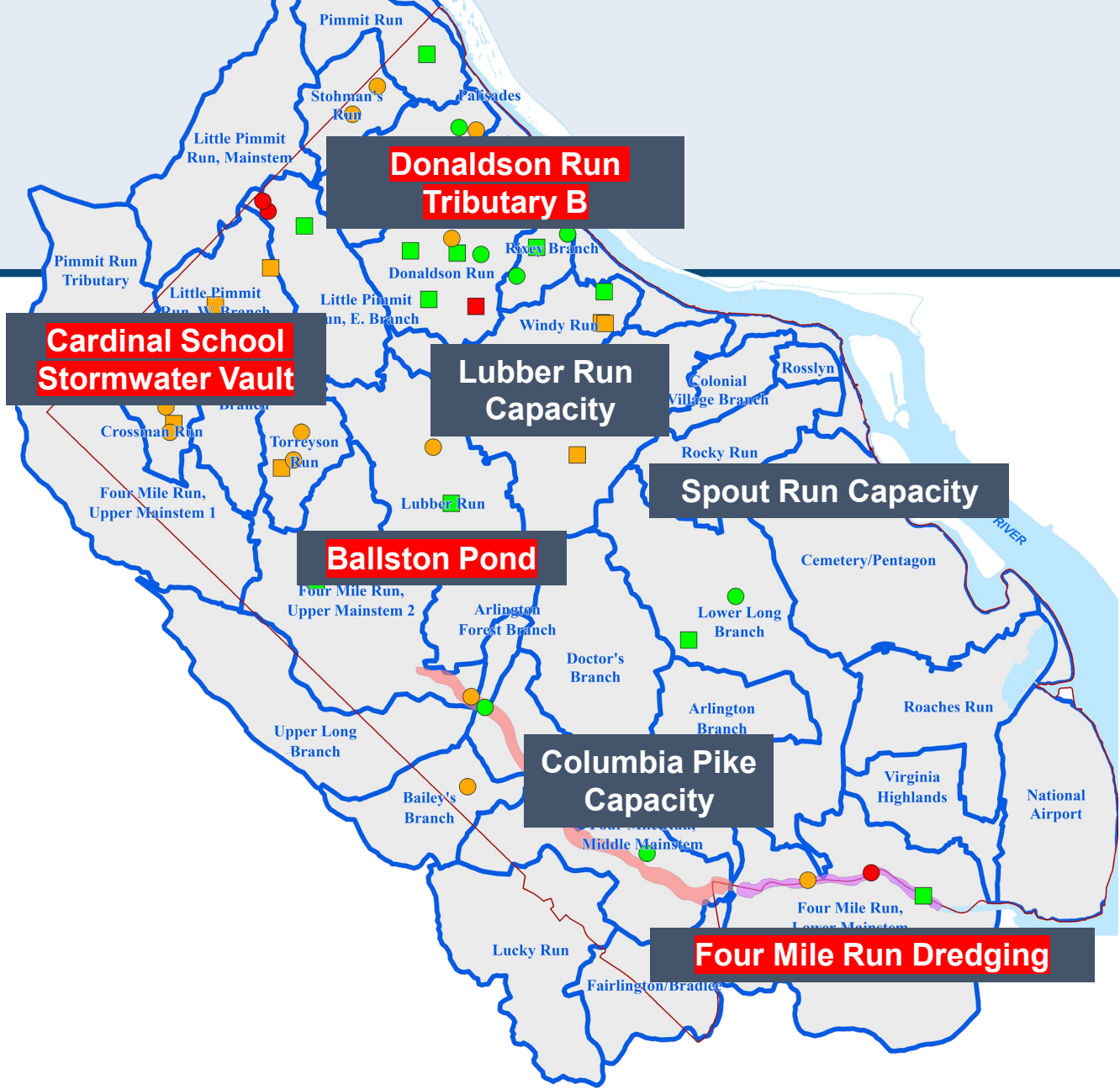
Note: Torreyson Run is one of the five critical watersheds that experienced severe flooding in 2019.



Overview: Mapping Program Investments

Legend

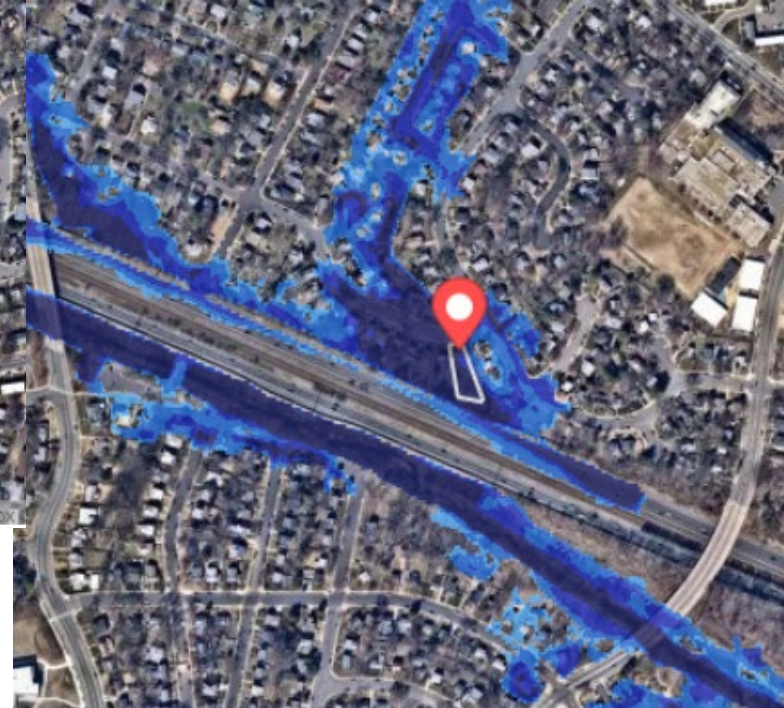
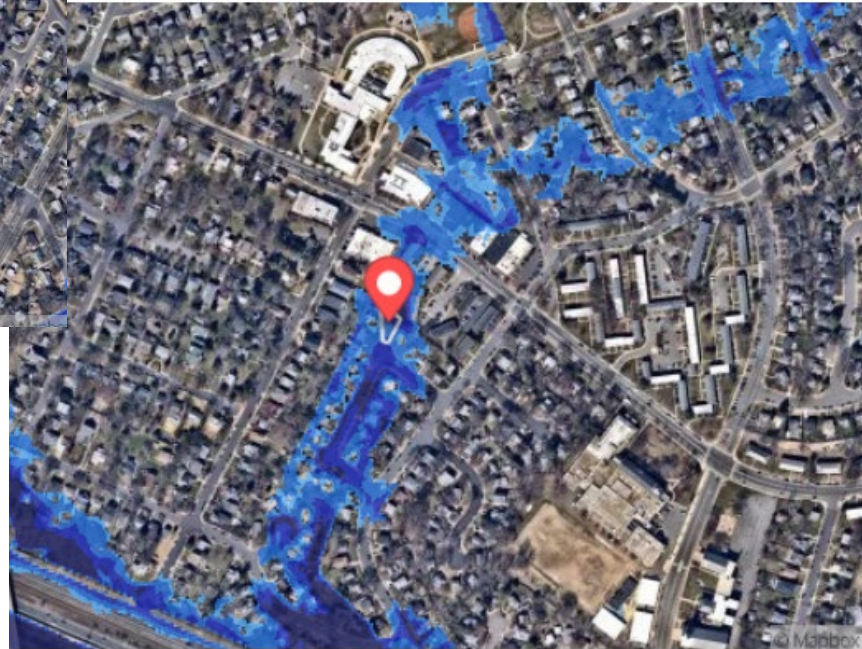
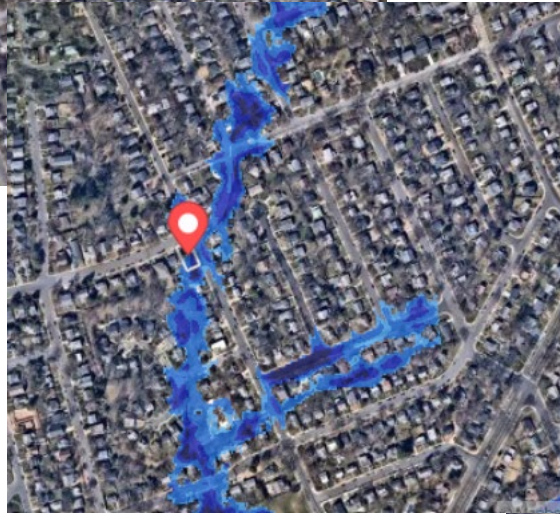
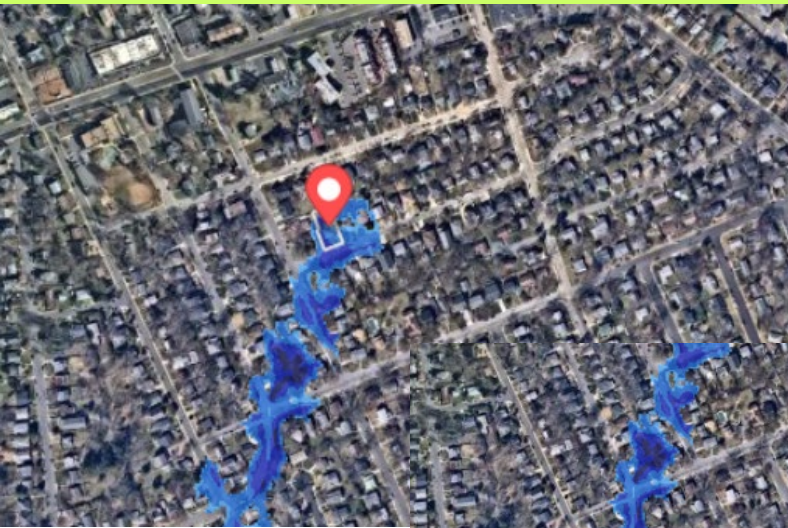
- Watersheds
- Storm Water Management Projects**
- Program / Status**
- Capacity Complete / Under Construction
- Capacity / Planned
- Maintenance Capital / Complete
- Maintenance Capital / Planned
- Water Quality / Complete
- Water Quality / Planned
- Past Storm Water Management Initiatives**
- Flood Control 1984
- Flood Plain Aquisition 60's-70's
- Other Map Elements**
- County Line
- Potomac River



Know Your Flood Risk

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.



Climate Alpha is another web tool

<https://climatealpha.ai/>

From Climate Risk to Climate Opportunity

Climate change tells you where to sell. Climate Alpha tells you where to buy.

200,000

Properties modeled for risk-adjusted valuation

70%

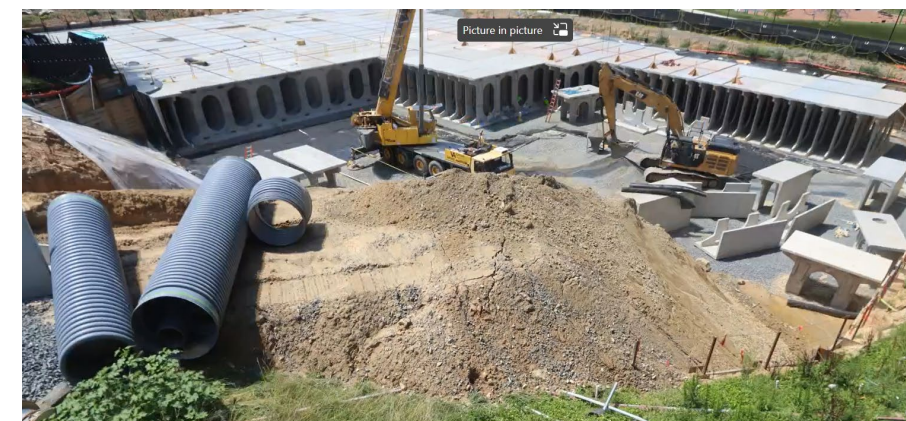
Higher real estate portfolio appreciation by 2030

>2 Yrs + \$2M

Saved using Climate Alpha's SaaS platform

Progress in Torreyson Run

- **Cardinal School Stormwater Vaults are complete**



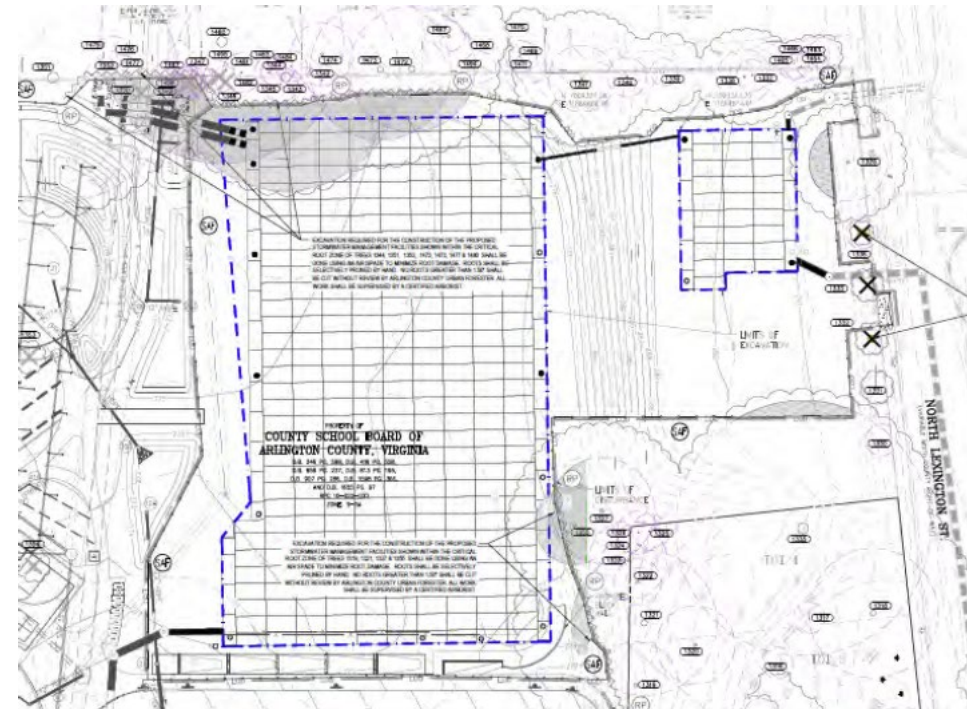
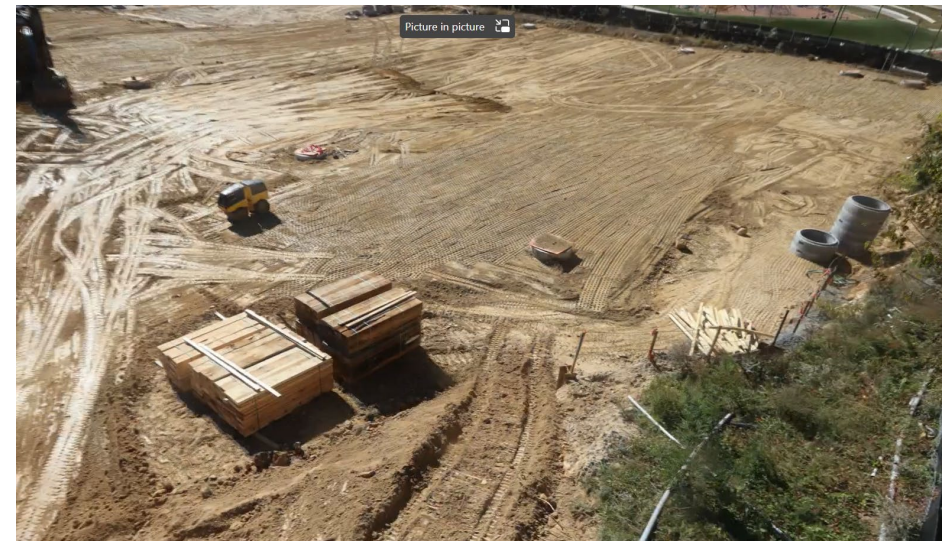
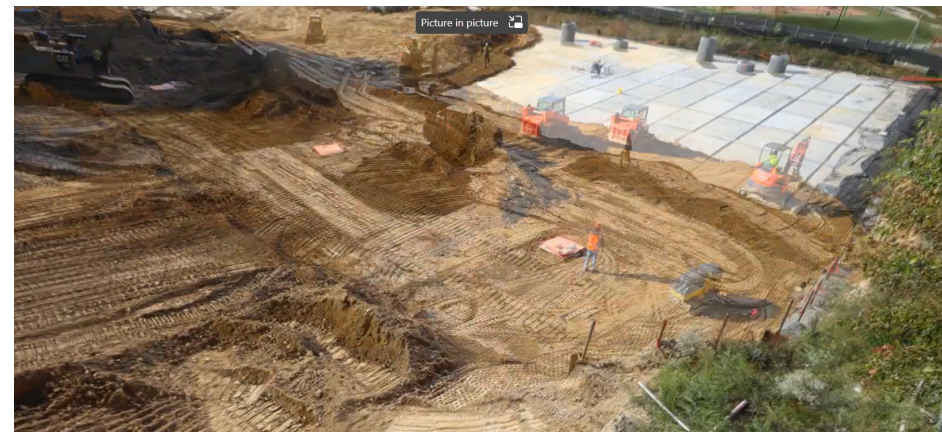
[Projects to watch video](#)

[Cardinal Elementary StormTrap Time lapse](#)

Cardinal Stormwater Vault Project is completed

Final easement agreements between DES and APS in process now, will go to School Board and County Board in November

Several Maintenance Inspections of the Vault System have been completed



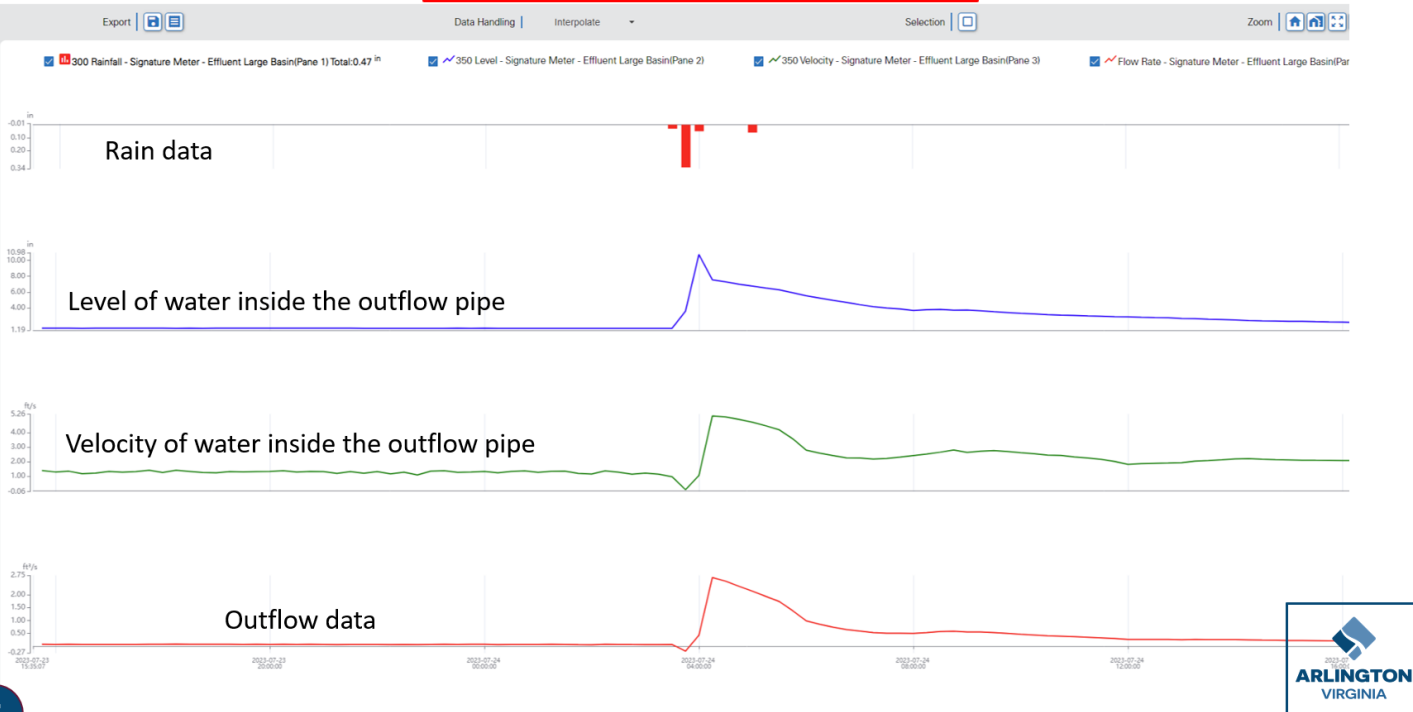
[Projects to watch video](#)

[Cardinal Elementary StormTrap Time lapse](#)

Vault Includes Flow Monitoring System

Results

Effluent of Large vault related to 7/23/2023

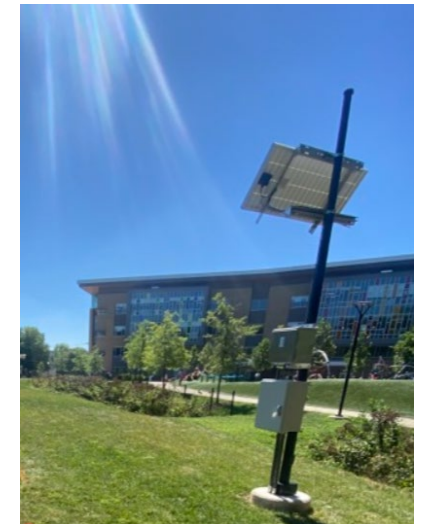


- Cardinal School Vault Flow Monitoring System is currently recording data and staff is analyzing.
- The data will be used to evaluate other potential vault systems, for example in Lubber Run
- Maintenance Contract has been procured and inspections have taken place. This will be useful for any other such systems that are installed.
- Still have two sensors that need repair



Cardinal School Reports (8/14/2023):

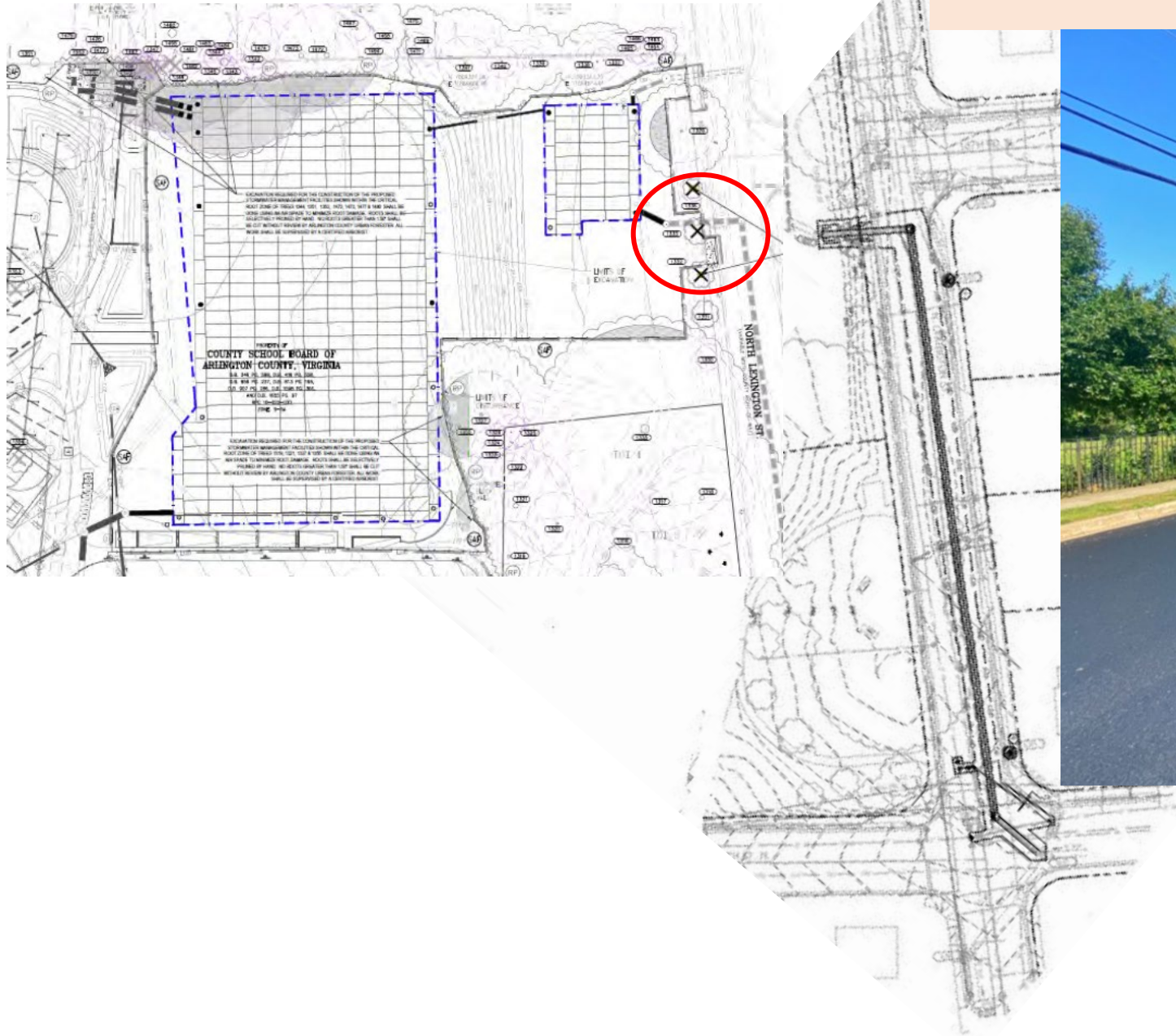
- 0.82" Rain in 30 minutes, intensity: 1.64 in/hr
- Max Level of water in Large vault: 25"
- Max level of water in Small vault: 42"



Fields over the Stormwater Vault at Cardinal School. Cones mark access ports, which will have artificial turf installed over them. A community-initiated celebration occurred on September 30.



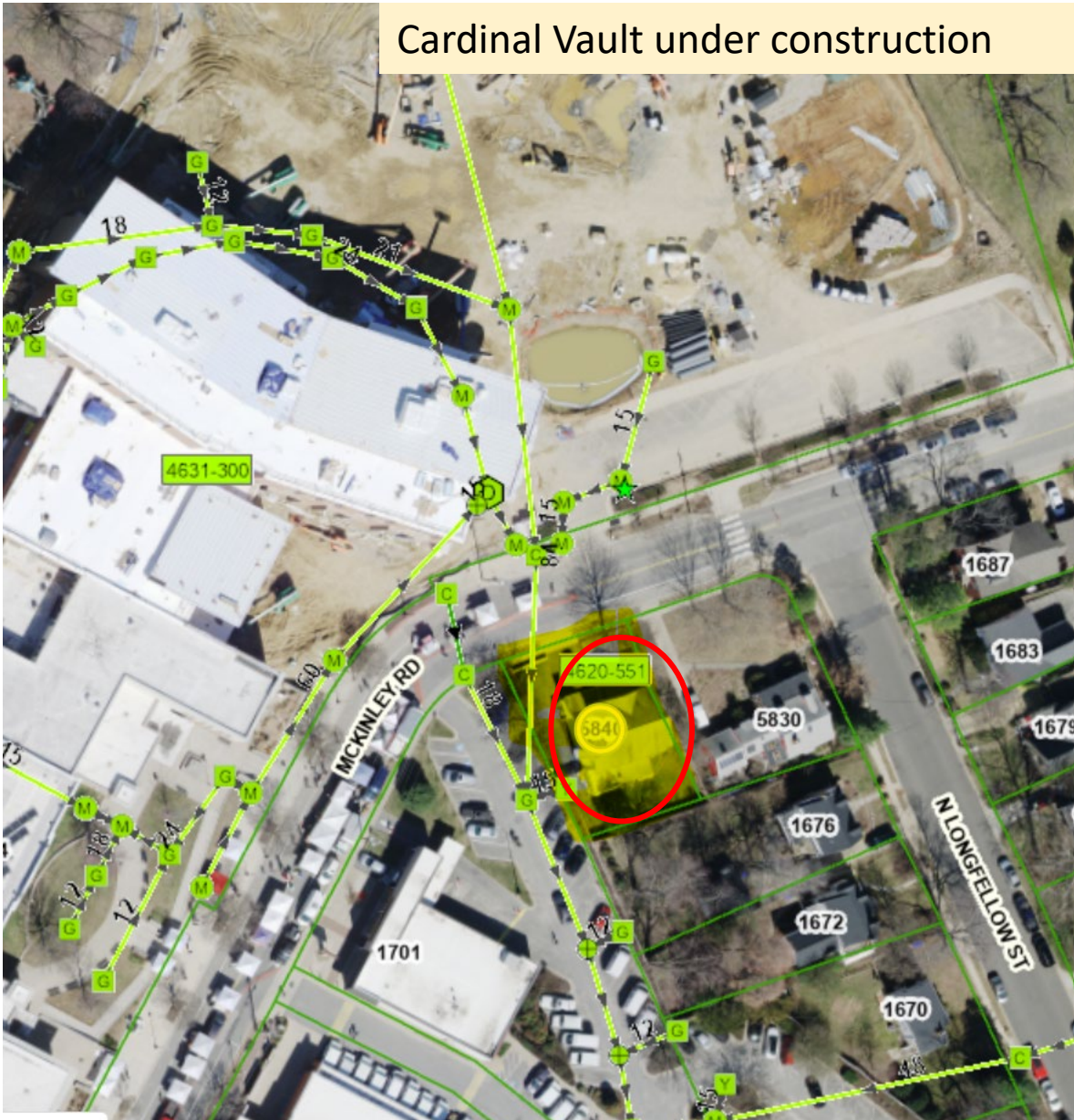
N Lexington St. Storm Drainage Improvement is Complete



Paving was completed Aug. 9

5840 18th St. N Acquisition

Cardinal Vault under construction



Demolition plans have been started – requires approximately 4 months for permits

Utility services must be shut off and disconnected prior to demolition

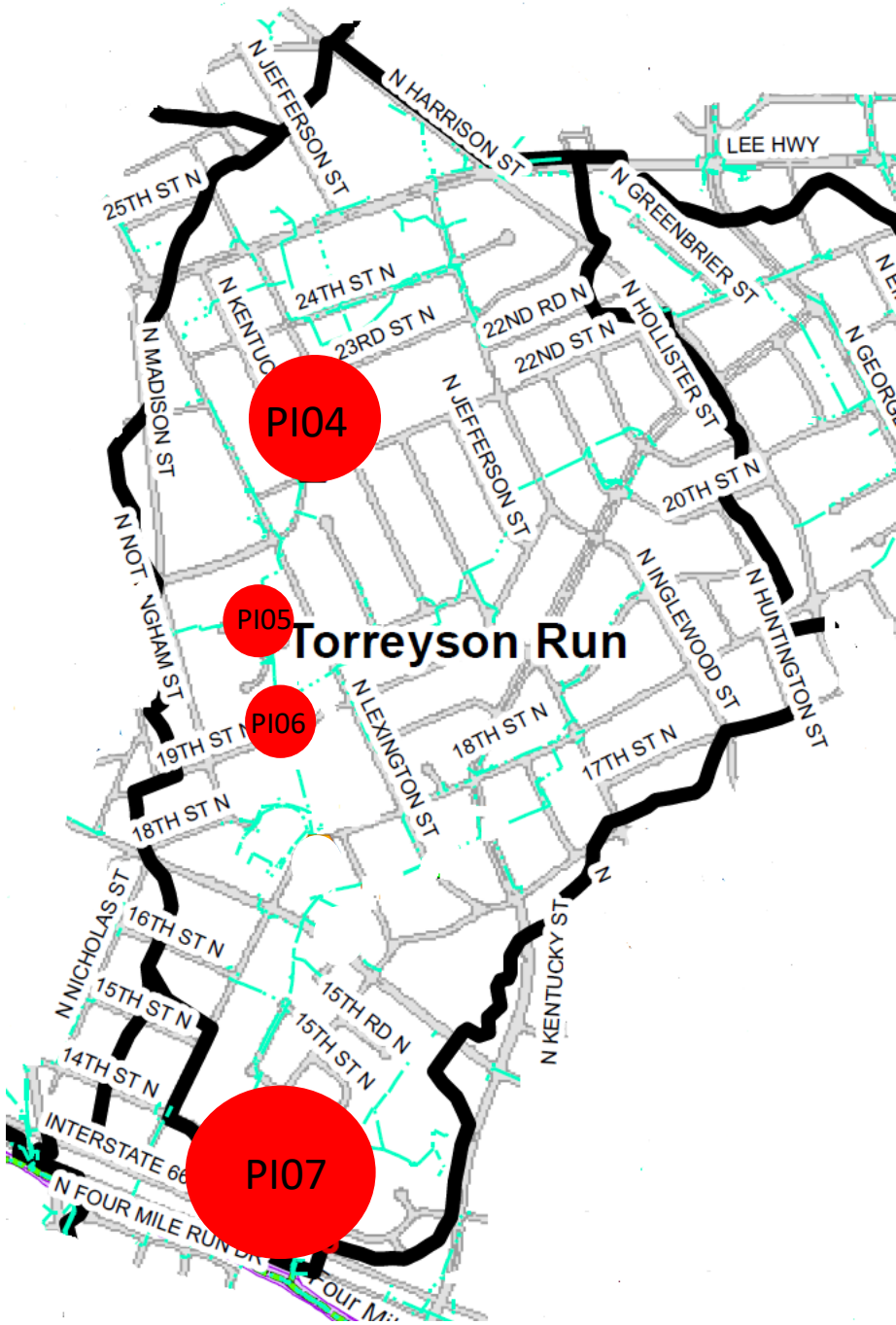
Hazardous Materials survey will be completed. This is done for all County properties. Looking for items like lead paint and asbestos.

Property will be left without improvements.

Property will be used for:

- Overland Relief
- Staging when the Cardinal Detention Vault system requires maintenance to reduce impact to school activities and reduce parking impacts

4 Additional Storm Drainage Projects



Design of four additional Storm Drainage Projects for additional reaches of the Watershed have been initiated:

1. PI04 N Kensington @ 23rd St.
2. PI05 N Lexington @ 20th St. N – most advanced in design process
3. PI06 19th St. @ N Lexington St.
4. PI07 Expansion of Culvert at I-66 and N Longfellow

Projects in **Design** phase

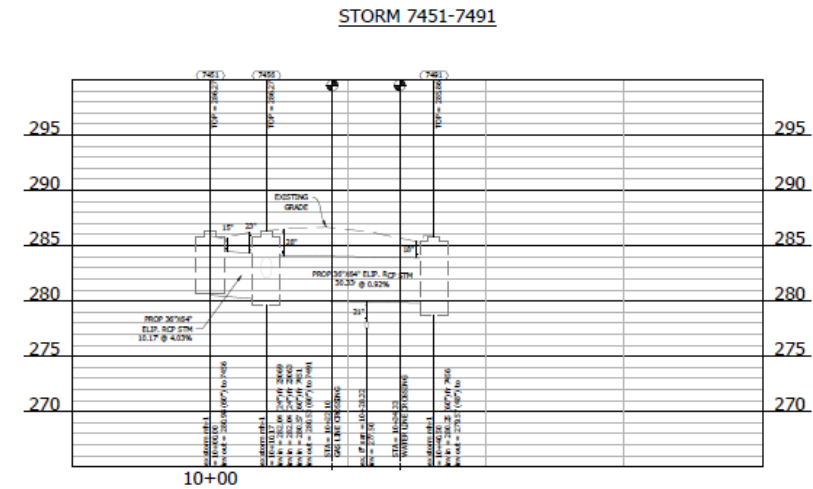
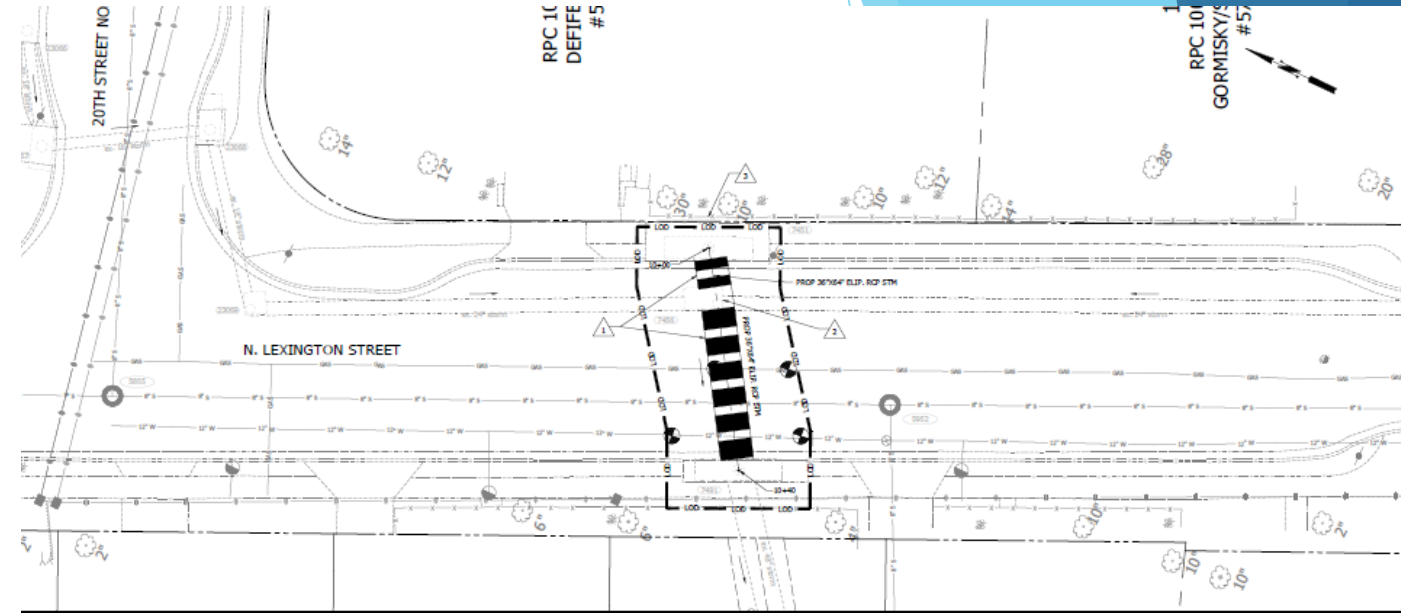
No Schedule determined yet

Continuation of Watershed Improvements to facilitate storm water to enter Vaults at Cardinal School

Also working on Flow monitoring of Vault flows and performance

N Lexington St near 20th St N

- ▶ 90% plans reviewed and returned
- ▶ No LDA permit required
- ▶ Replace existing 48" equivalent elliptical CMP with 48" equivalent elliptical RCP across N Lexington
- ▶ Additional test pits confirm no conflicts with existing gas and water mains, however, there is virtually no clearance - Engineers working to relocate gas line - awaiting relocation plans from Washington Gas





CIP Funding for Torreyson Run

Adopted FY 23 – FY 32 CIP

10 YEAR CATEGORY SUMMARY (in \$1,000s)

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	10 Year Total
15. Torreyson Run Watershed Capacity Improvements	340	2,165	2,225	2,515	3,585	3,900	0	0	0	0	14,730

Note that funding for this FY is for design work on additional projects for other reaches of the watershed, which is underway. Funding for the Cardinal School Vaults was in previous CIP's and is not part of this CIP. Proposal for upcoming CIP will be similar to continue work on other portions of the Watershed, areas near I-66

Updates on Other Stormwater Initiatives

- Plan Langston Boulevard (PLB)
- FEMA FIRM update
- Arlington County Floodplain Ordinance update
- Stormwater Utility Update
- RAMP update
- High Water Detection Sensors
- Ballston Pond Update



Plan Langston Boulevard

Study Overviews and Reports

- Study Scope and Charge
- Existing Conditions Analysis Report
- Existing Conditions Analysis Overview
- Historic and Cultural Resources Report
- Neighborhood Inspiration Report (Appendix)
- Preliminary Concept Plan
- June 2023 Draft Langston Boulevard Area Plan
- ***NEW - Updated Draft Langston Boulevard Area Plan for RTA**

The planning team is pleased to share the [Updated Draft Langston Boulevard Area Plan](#) for the request to advertise (RTA). This updated version of the plan refines concepts in the June 2023 Draft Plan based on community, commission, and County Board input to date. It will be considered by the [Planning Commission on October 2](#) and the [County Board on October 14](#). The public can participate by sharing live verbal testimony or written comments in advance of Planning Commission and County Board hearings. [October 2 Planning Commission Meeting Slides](#)

[Plan Langston Boulevard Documents](#)



CONTACT US

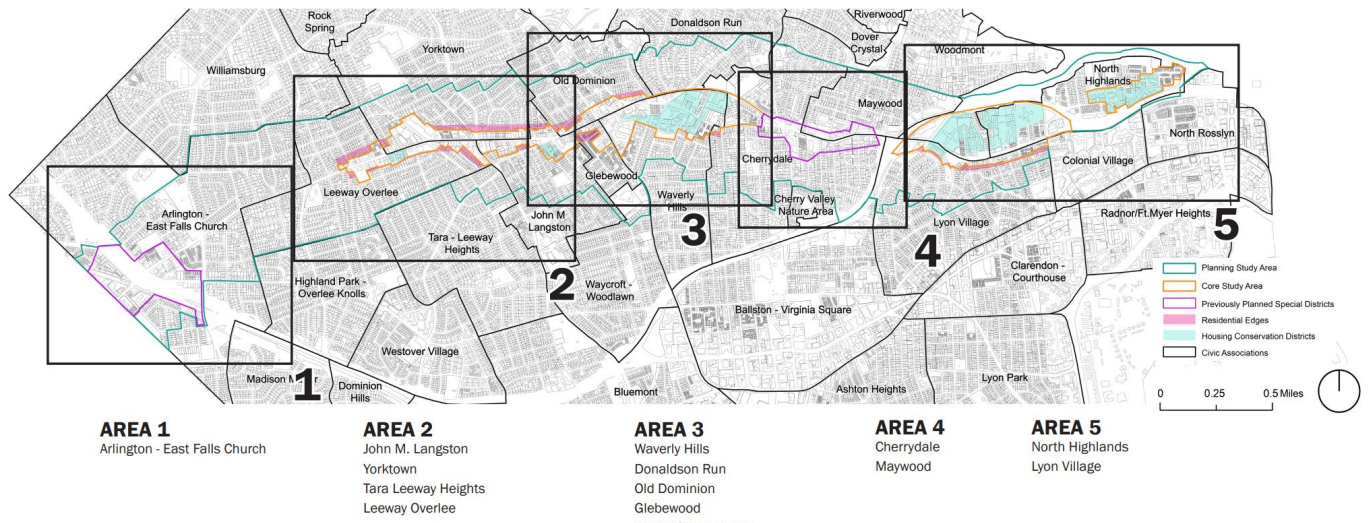
planlangstonblvd@arlingtonva.us

Coordinator

Natasha Alfonso-Ahmed
703-228-3691

Communications & Engagement

Rachel LaPiana
703-228-0059



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.)

Floodplain Ordinance Update

- Required due to FIRM updates
- Must be approved by DCR and FEMA
- Must conform to model ordinance
- Must be adopted within 6 months after Letter of Final Determination (LOD)
- Letter of Final Determination May 16, 2023
- New Maps Effective November 16, 2023

Overall, proposed changes are minor

[Flood Insurance Rate Maps Update Process – Official Website of Arlington County Virginia Government \(arlingtonva.us\)](https://www.arlingtonva.us/office-of-planning-and-transportation/flood-insurance-rate-maps-update-process)



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

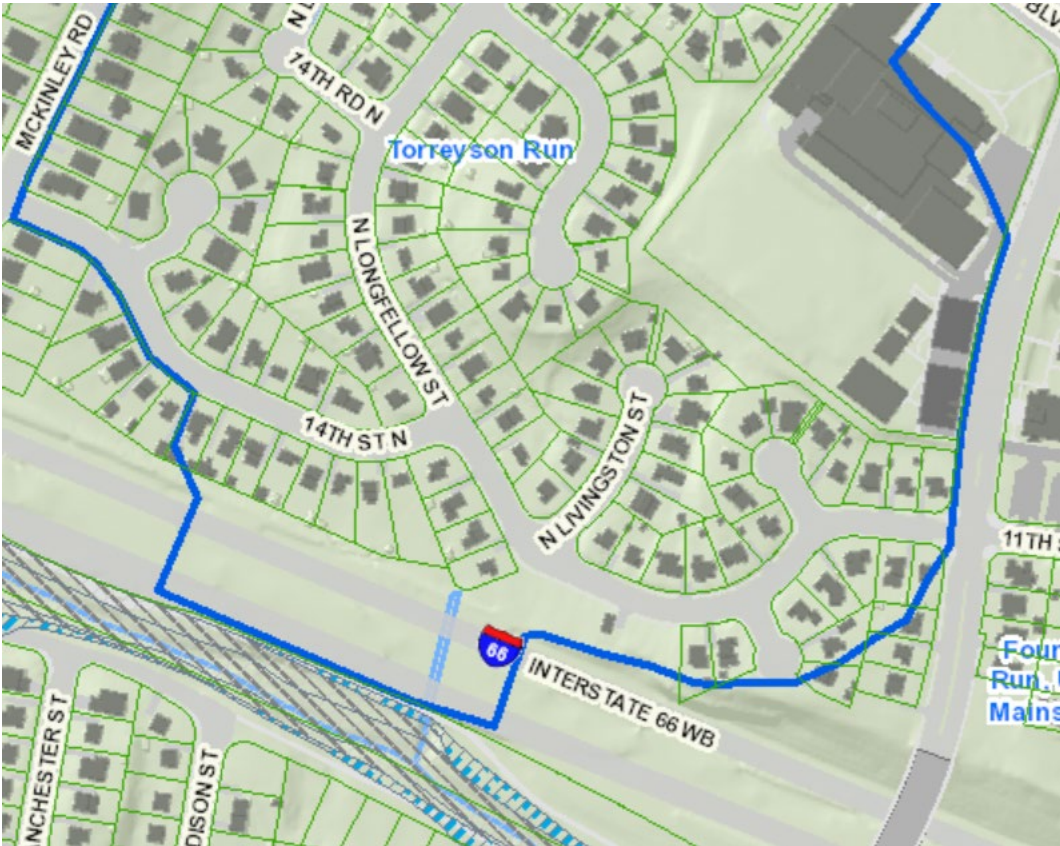
Adoption of Floodplain Ordinance at Board Meeting: October 14, 2023

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.

FEMA Floodplain Map Update

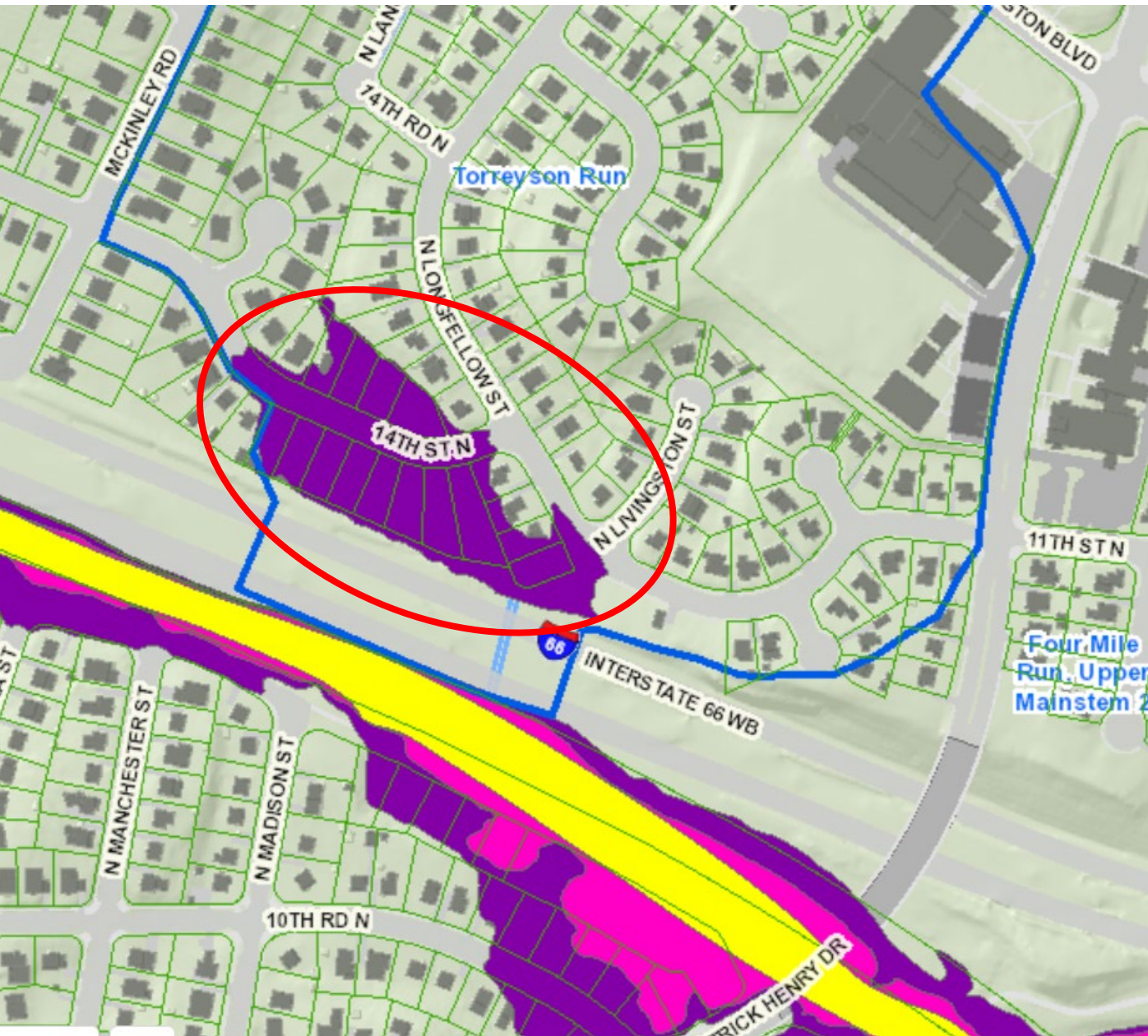
Effective Floodplains –
there are none in this
watershed



FEMA Floodplain Map Update

Detail of Pending floodplains

[ACMaps \(arlingtonva.us\)](http://ACMaps(arlingtonva.us))



- A,
- AE,
- AE, FLOODWAY
- X, 0.2 PCT ANNUAL CHANCE

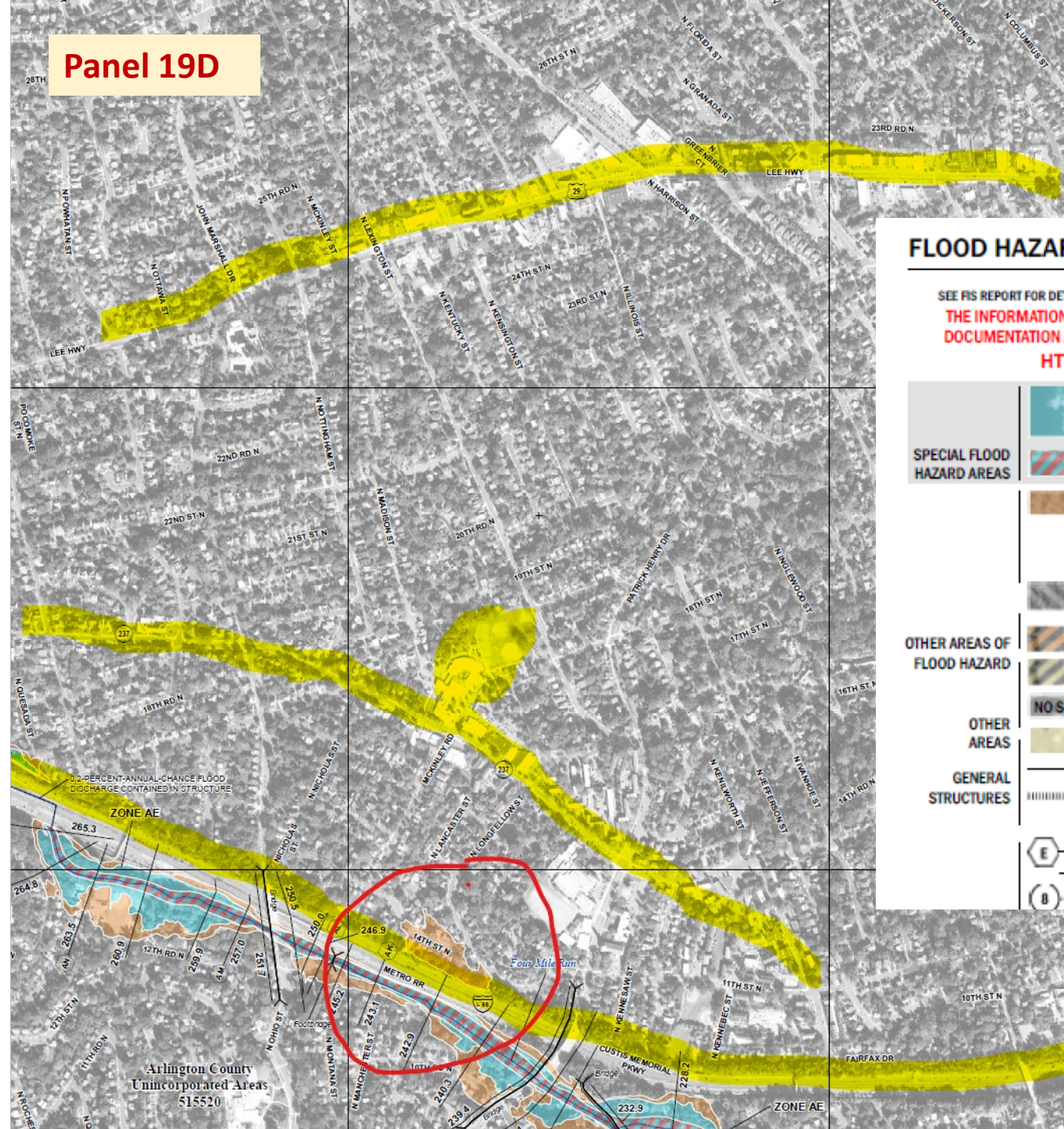
A few lots will now be in the 0.2% chance flood zone (aka 500-year flood zone) which will remain unregulated except for prohibition on emergency services, medical facilities like hospitals and clinics (but not individual dental or doctor offices) or storage of government records.

Impact is almost zero.

- New Ordinance and maps effective Nov. 16, 2023

Panel 19D

Preliminary FIRM



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway
		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
OTHER AREAS		Area with Flood Risk due to Levee Zone D
		NO SCREEN Areas of Minimal Flood Hazard Zone X
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
GENERAL STRUCTURES		Levee, Dike, or Floodwall
		18.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect



**NATIONAL FLOOD INSURANCE PROGRAM
 FLOOD INSURANCE RATE MAP**

ARLINGTON COUNTY, VIRGINIA
 (All Jurisdictions)



FEMA

PANEL 19 of 83

Panel Contains:

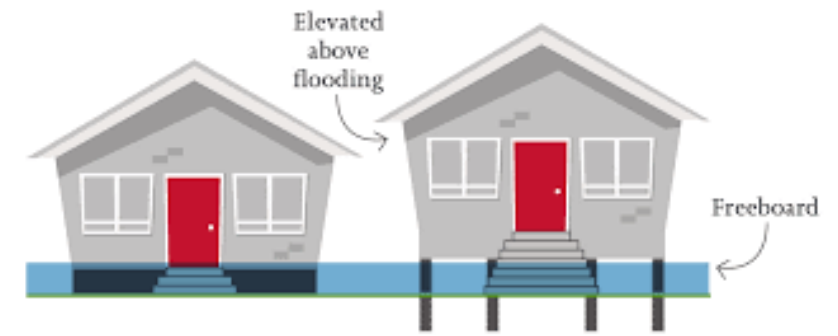
COMMUNITY	NUMBER	PANEL	SUFFIX
ARLINGTON COUNTY	515520	0019	D

PRELIMINARY
9/18/2020

VERSION NUMBER
2.64.6
 MAP NUMBER
51013C0019D
 MAP REVISED

Proposed changes to Floodplain Ordinance

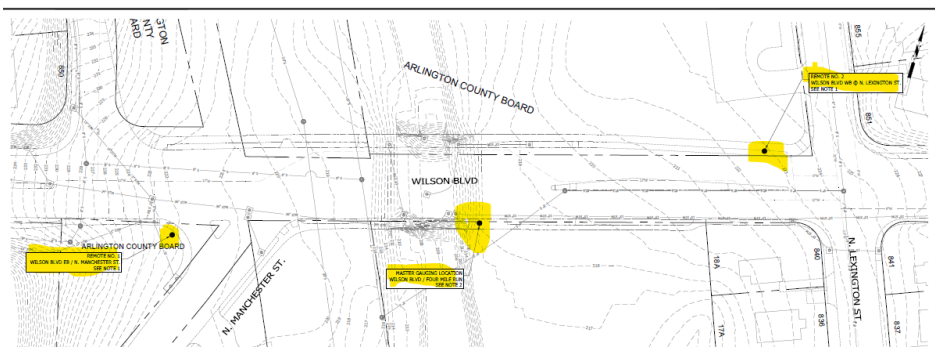
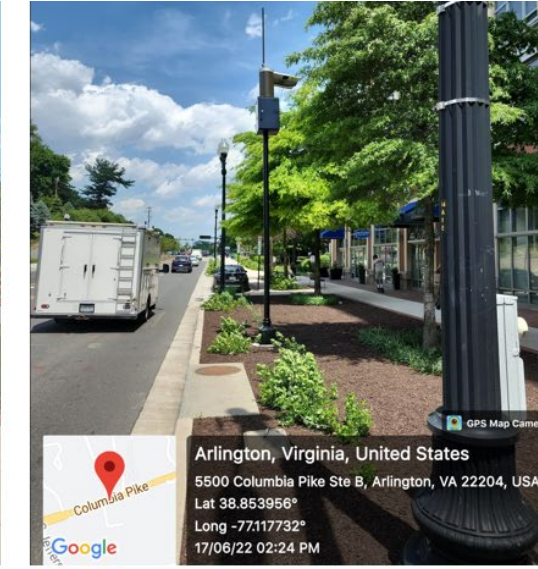
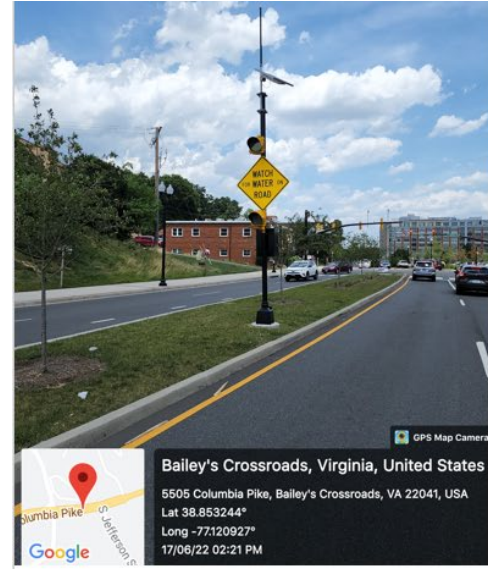
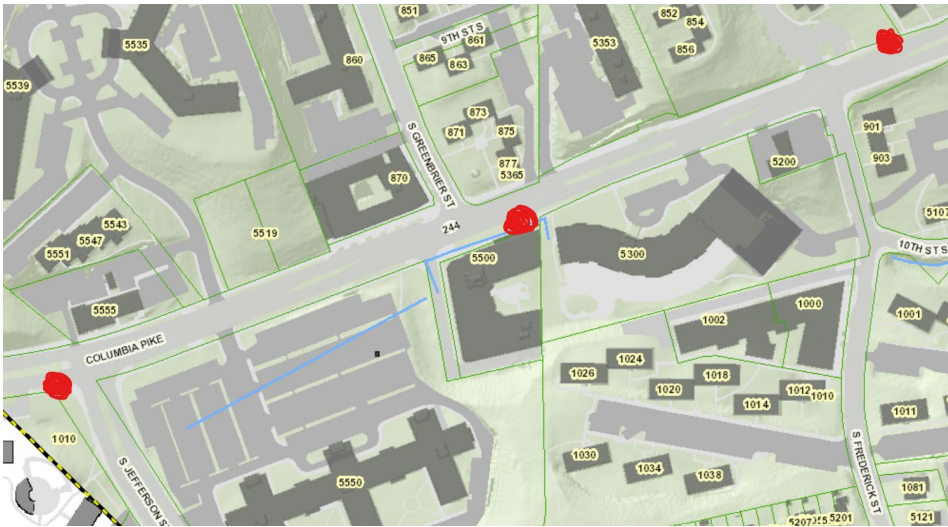
- Increase in required freeboard (distance above base flood elevation) from 12 to 18 inches, or
- Buildings in 100-year floodplain must be watertight 2 feet above the base flood elevation (previous requirement 1 foot)
- Accessory structures cannot be larger than 600 feet
- No emergency service, medical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



High Water Detection Devices

Two high water detection devices installed

Location #1: Columbia Pike near S Greenbrier St.



A third set of devices is slated for Kirkwood Rd. @ Langston Blvd.

Location #2 Wilson Blvd. near N Lexington St. and N Manchester St.

High Water Detection Devices

Example Data

🌧️ Rain Increment (0)

🔄 Reload

🏠 Home > 🚩 Sites > Columbia Pike (13001) > Rain Increment (0) ▾

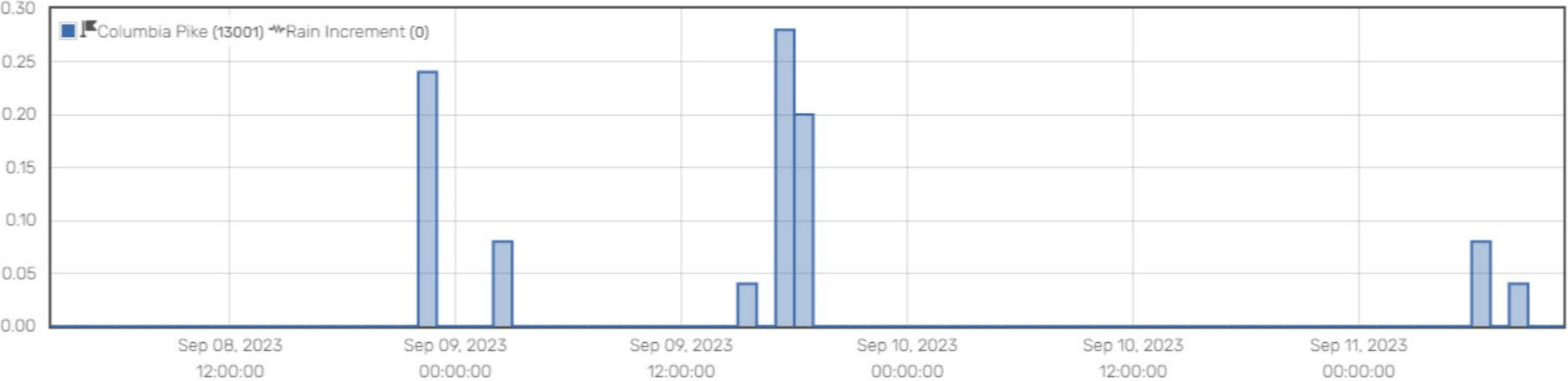
🕒 0.04 in
⌚ 3 hours ago

⬆️ 0.04 in
Value Max

⬆️ 0.00 in
Value Min

📅 04 September, 2023 - 11 September, 2023

● Markers | 🚩 Legend | 🔍 Zoom Out | ⏪ Hourly ▾



High Water Detection Devices

Example Data

Location #2 Wilson Blvd. near N Lexington St. and N Manchester St.

📶 Rain Increment (0)

🔄 Reload

🏠 Home > 🚩 Sites > Wilson Blvd at Four Mile Run (13004) > Rain Increment (0) ▾

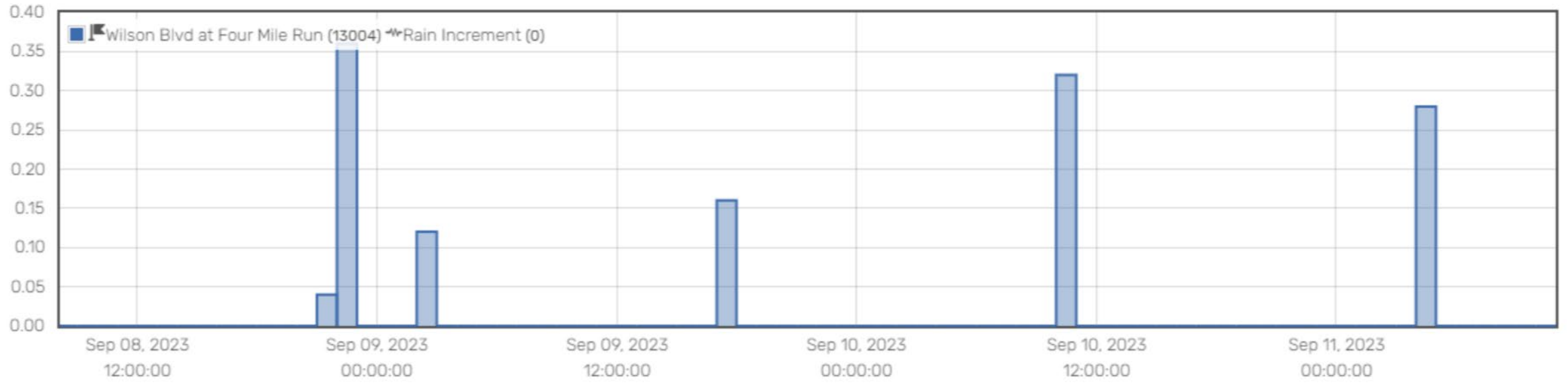
🕒 0.04 in
🕒 6 hours ago

⬆️ 0.32 in
Value Max

⬇️ 0.00 in
Value Min

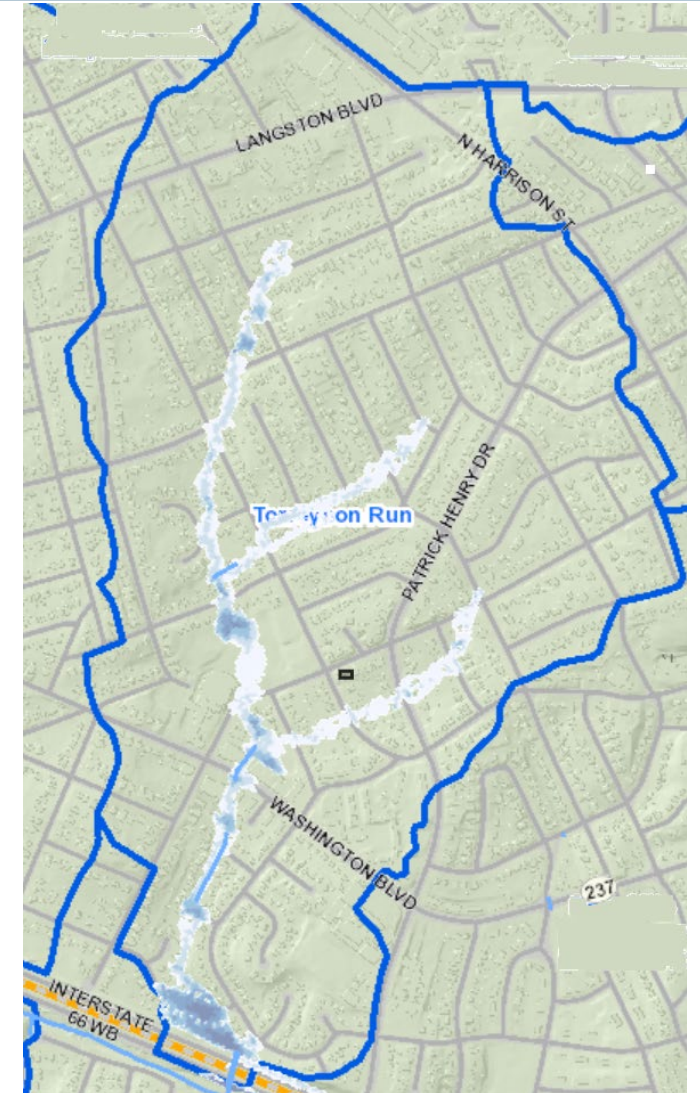
📅 04 September, 2023 - 11 September, 2023

● Markers | 📖 Legend | 🔍 Zoom Out | ⏪ Hourly ▾



Risk Assessment and Management Plan (RAMP)

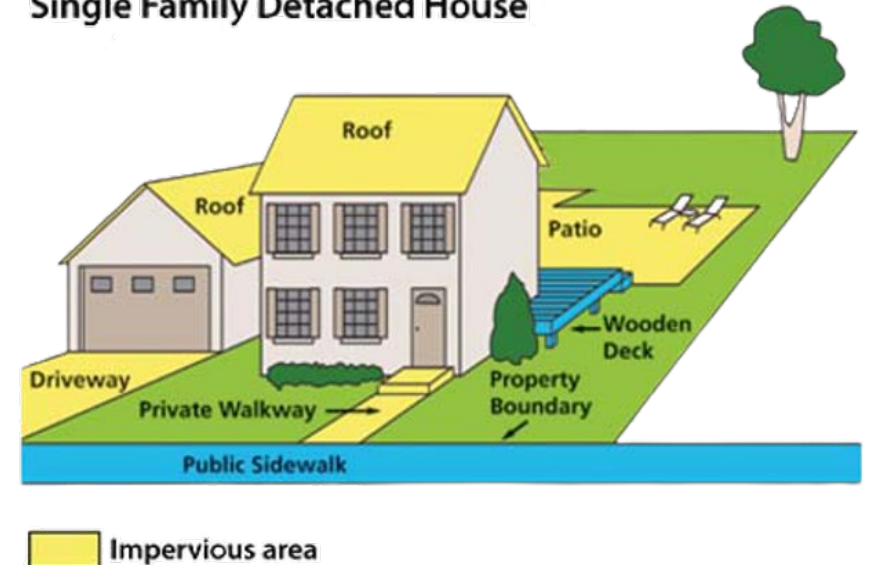
- Will deliver updated rainfall curves, 10-year design standard and 2040 and 2070 climate projections
- The RAMP maps critical community facilities in all sectors, to support vulnerability and risk assessments, and allow mitigation planning.
- Map County's "urban" floodplains (outside FEMA floodplains)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



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

Single Family Detached House



Ballston Wetland Park

Ballston Wetland
Park project is
complete!



Path to a Flood Resilient Torreyson Run

Questions?

Elizabeth Thurber
Program Manager
703-987-6546
Ethurber@arlingtonva.us

Jennifer Tastad
Infrastructure Team Leader
703-469-6384
Jtastad@arlingtonva.us

Aileen Winquist
Stormwater Communications Manager
703-228-3610
Awinqvist@arlington.va

Demetra McBride
Bureau Chief, Office of Sustainability &
Environmental Management
Dmcbride@arlingtonva.us

