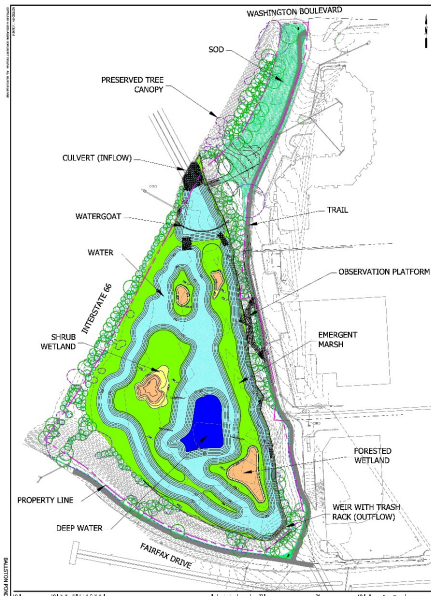


Bluemont Civic Association

January 27, 2021



Speakers

Aileen Winqvist

Stormwater Communications Manager

703-228-3610

awinqvist@arlingtonva.us

Demetra McBride

Bureau Chief, Office of Sustainability

Environmental Management

703-228-3612

dmcbride@arlingtonva.us

Elizabeth Thurber, P.E.

Stormwater Infrastructure Program Manger

Floodplain Manager

571-289-2498

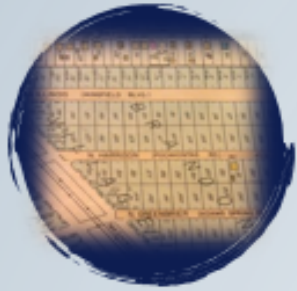
Ethurber@arlingtonva.us

Agenda – information requested

Flooding risk to homes along N. Abingdon Street and possibly other areas of Bluemont. County projects to address these risks?

Proposed updates to FEMA flood maps. What is driving the change in FEMA's assessment.

Redevelopment. North Bluemont Drive – need for sump pumps after decades of living in the area with no water problems. Smaller houses uphill were torn down, old trees were cut down, and large homes with large basements were put in their place.



Inherited Development

- Rapid early development without “system” approach
- Undergrounding / lack of overland relief
- Bad assumptions on long term impervious scope



Lack of Early Regulation

- Late adoption of overland relief standards
- Design Storm is antiquated
- No requirements for tertiary or lateral assets



Urbanization and Continuing Growth

- Increasing density
- Increasing impervious
- Poor soils surfaced, plus compaction, tree/canopy reduction



Climate Volatility and Acceleration

- Increasing frequency, intensity and/or duration of storms
- “Design-storm” standard is no longer responsive
- Sea-level rise and storm surge



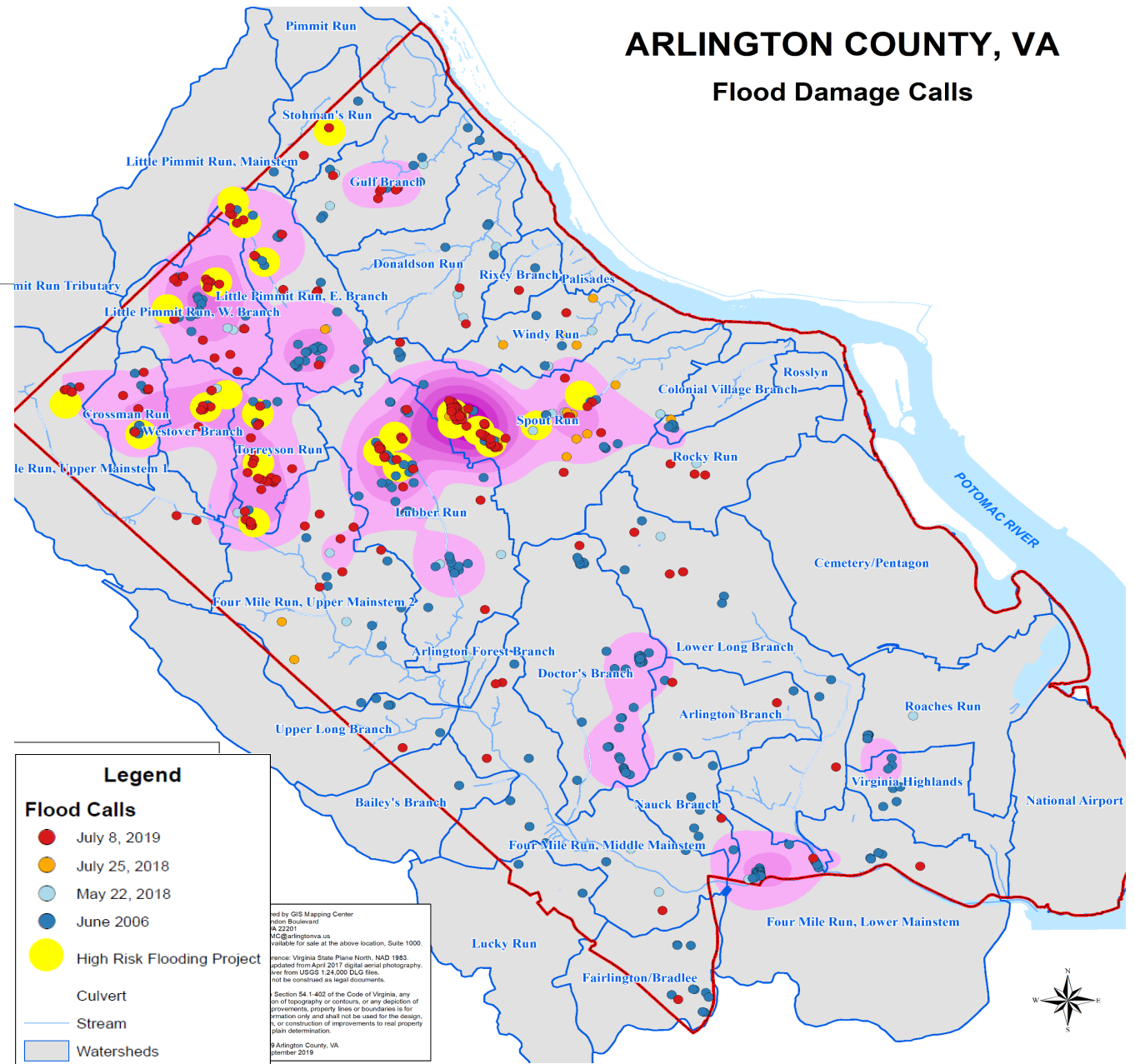
Under-Sized, Under-Capacity and Non-Adaptive Systems

- Combined, under-performance
- An urban profile that is not moving toward adaptation and resilience.

Flood Damage Calls

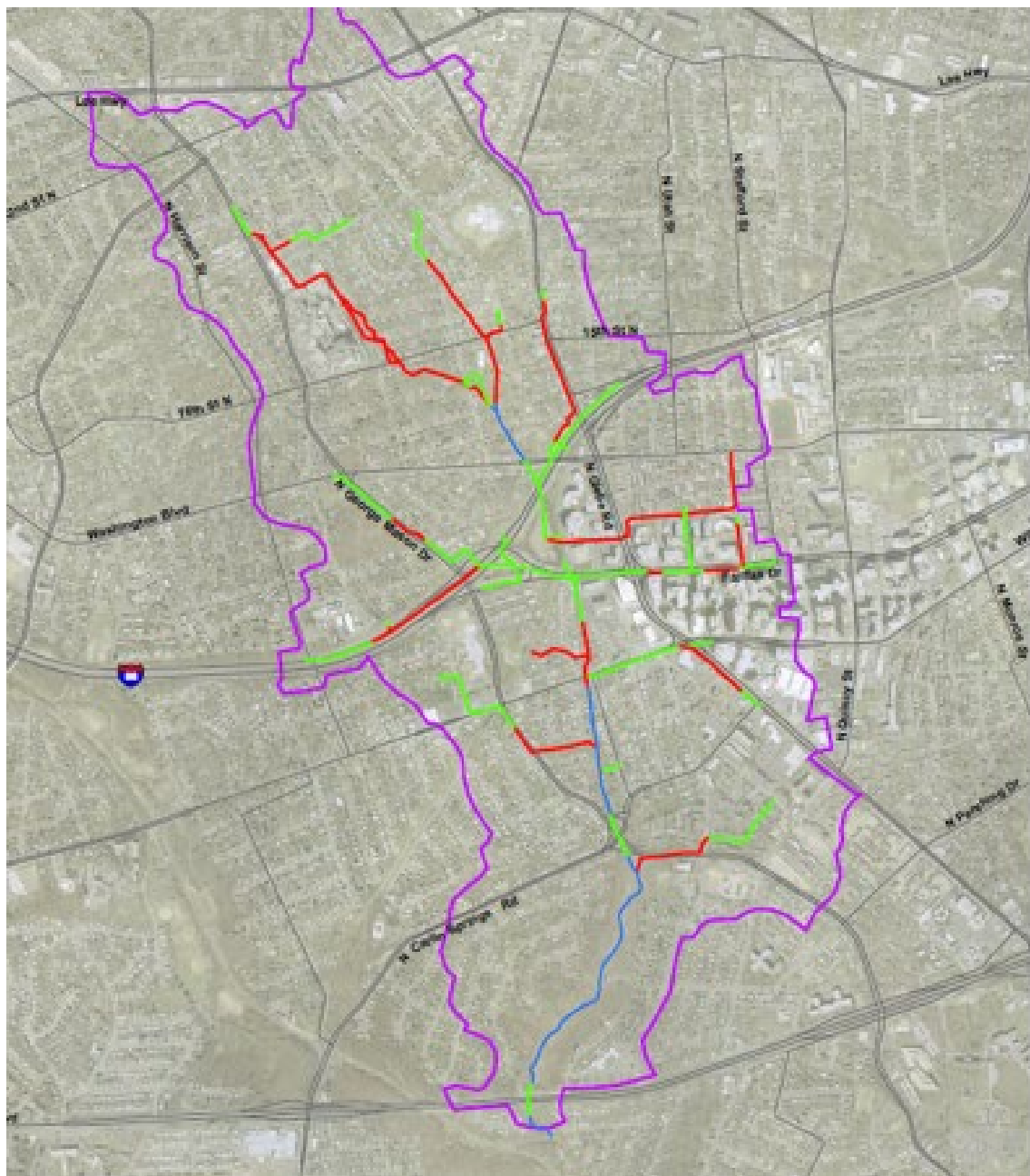
Map demonstrates flood calls from the following storms in relation to high risk flooding projects identified in Stormwater Master Plan:

- July 8, 2019
- July 25, 2018
- May 22, 2018
- June 2006



System Capacity Upgrades

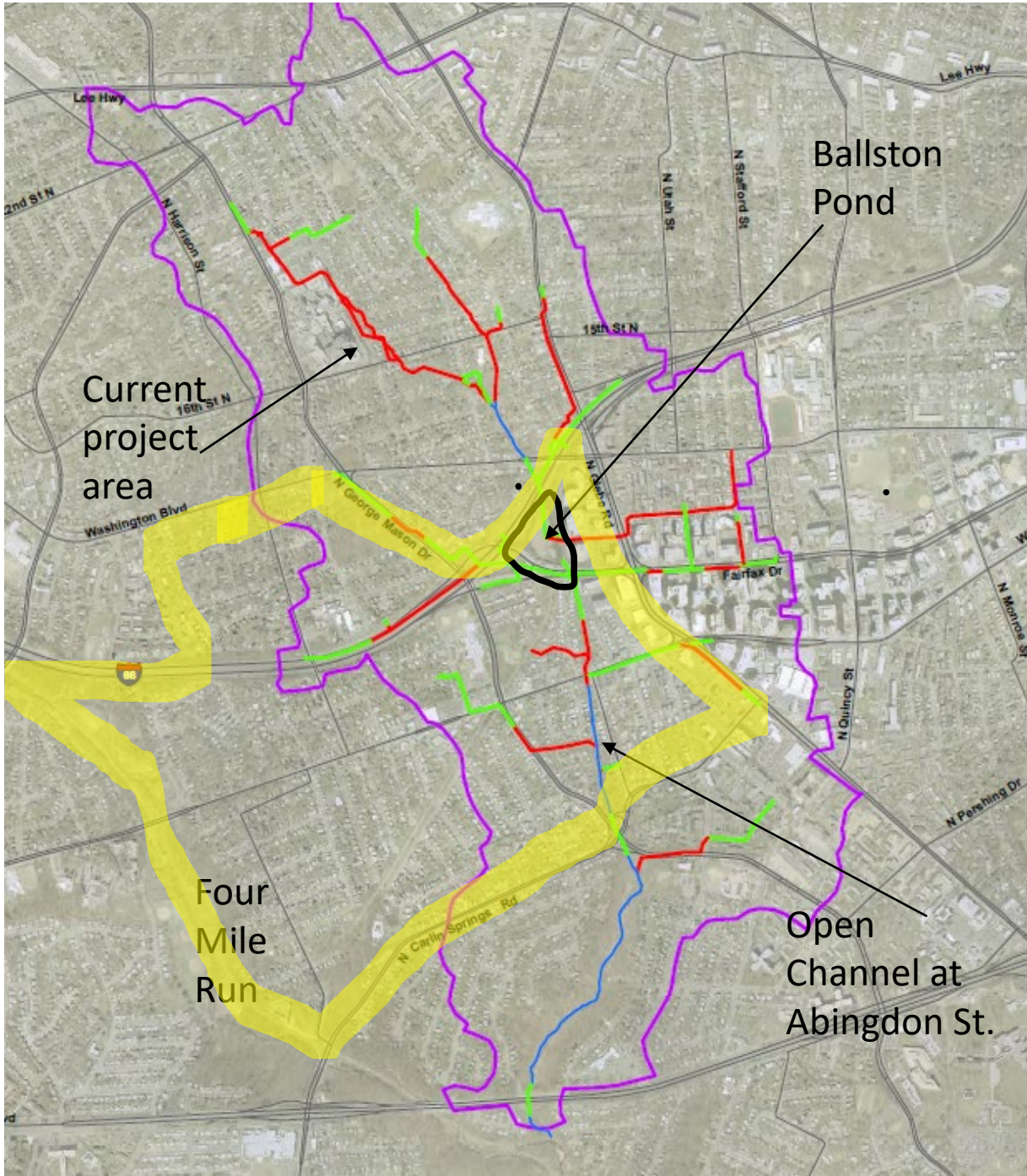
- Five priority watersheds based on recent, repeated severe flooding:
 - Spout Run
 - Torreyson Run
 - Crossman Run
 - Lubber Run
 - Westover Branch
- Bluemont includes part of Lubber Run. Beginning work on capacity projects in upper Lubber Run area – early stages



Capacity needed for Lubber Run Watershed

10 year Type II 24 hour storm
Red is needed pipe upgrades

Location Map

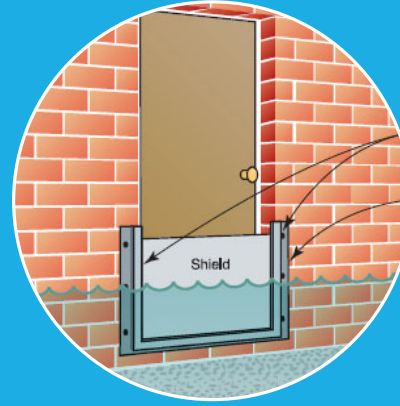


- Civic Association Boundary
- Lubber Run Watershed Boundary
- Ballston Pond
- Open channel near Abingdon St.
- Four Mile Run
- Storm Sewer Capacity Improvements
(from Stormwater Masterplan)
- Planned Stormwater Project areas

Key Elements Flood Resilient Arlington



Expansion of types
and locations of
capacity projects



Increased
outreach – help
property owners
protect
themselves



Revising
development
requirements



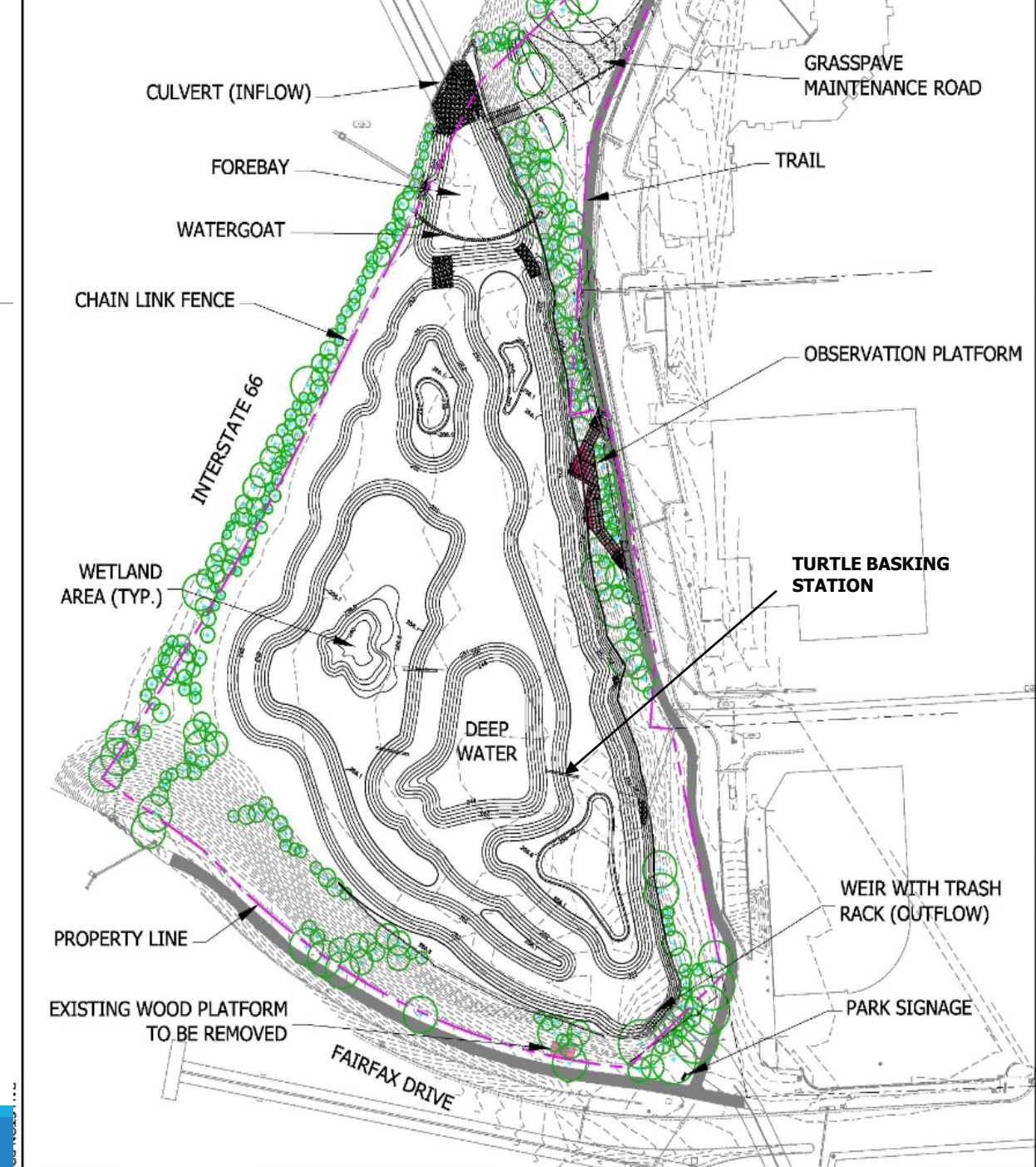
Risk Assessment and Management Plan (RAMP)

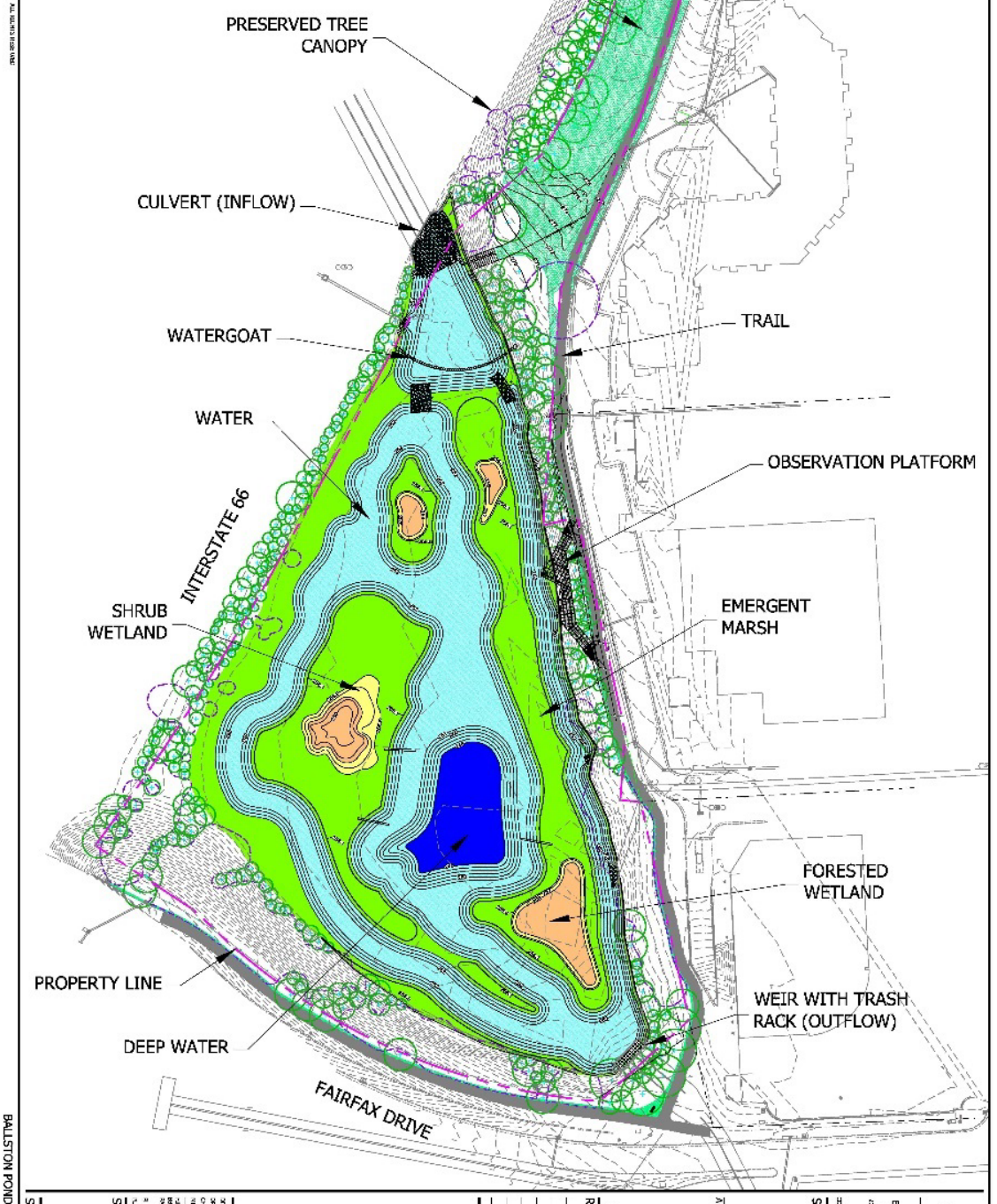
- Combines updated climate projections (2040 and 2070) with new capacity studies to identify system gaps.
- The RAMP maps critical community facilities in all sectors, to support vulnerability and risk assessments, and allow mitigation planning.
- Map County's "urban" floodplains (outside FEMA floodplains)
- Measures both Flooding and Sea Level Rise/Storm Surge Risks
- Define and value risks from flooding
- Informs flood resilient design and construction standards

Ballston Pond Project

Construction start –
summer 2021

Construction length-
12-18 months





BALSTON POND

Trash Control Devices



Water Goat at inflow



Trash Rack at Outflow

Trash control devices will be maintained by a contractor

Native Wetland Plants



Sycamore

Elderberry



Buttonbush



VA Wild Rye



Swamp Milkweed



Joe Pye Weed



Cardinal Flower

What is the Flood Insurance Rate Map?

Federal Emergency Management Agency (FEMA) publishes flood hazard maps, called Flood Insurance Rate Maps (FIRMs). The purpose of a FIRM is to show the areas in a community that are subject to flooding and the risk associated with these flood hazards.

The flood hazard and risk information presented on the FIRMs is the result of engineering studies that are performed by engineering companies, other Federal agencies, or communities, which are reviewed for compliance with FEMA guidelines and approved by FEMA.

<https://environment.arlingtonva.us/flood-insurance-rate-maps/>

<https://msc.fema.gov/portal/search#searchresultsanchor>

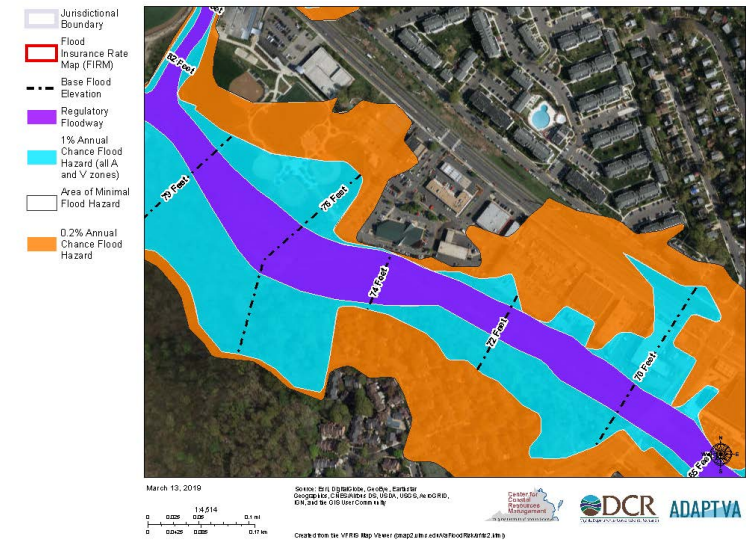


Special Flood Hazard Area

One of the areas shown on the FIRM is a Special Flood Hazard Area (SFHA).

The SFHA is the area that has a 1-percent or greater chance of flooding in any given year.

This area is also referred to by some as the 1-percent-annual-chance floodplain, base floodplain, or the 100-year floodplain.



What is the National Flood Insurance Program?



A Federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding.

Flood insurance provides an alternative to disaster assistance for repairing damage caused by floods.

Participation in the NFIP is based on an agreement between local communities and the Federal Government.

The community must adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas.

What is being updated?

FEMA periodically re-studies community flood zones and updates the Flood Insurance Rate Maps.

Arlington County's FIRM was last updated in 2013. Each update takes approximately 2-3 years. FEMA is starting to do more frequent FIRM updates in more developed areas.

Current updates include:

- **new hydrologic and hydraulic studies for Four Mile Run, establishing new base flood elevations and boundaries**
- **latest development data**
- **updated topography.**



Comparison between Effective and Preliminary Flood Boundaries

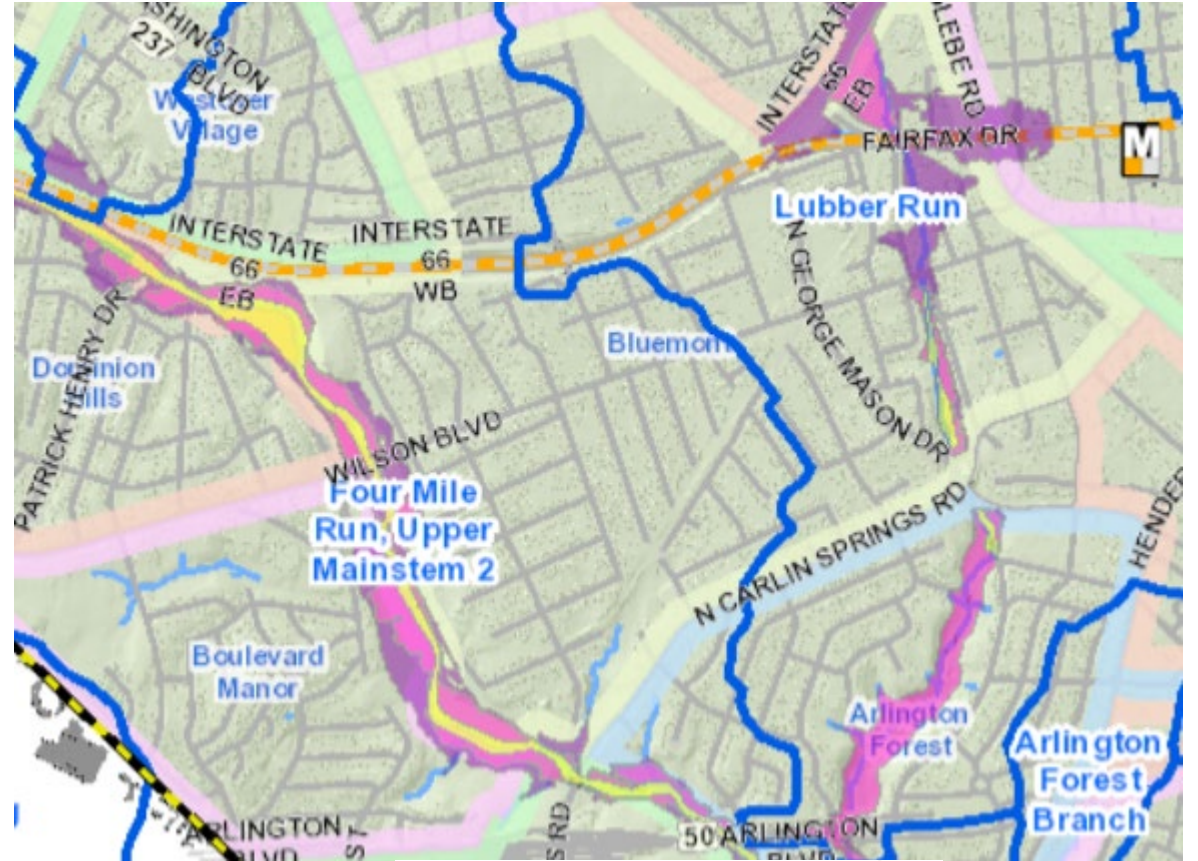


Effective Flood Zones >

Effective Base Flood Plain

0.2 % Annual Chance Flood

Hazard



Preliminary Flood Zones >

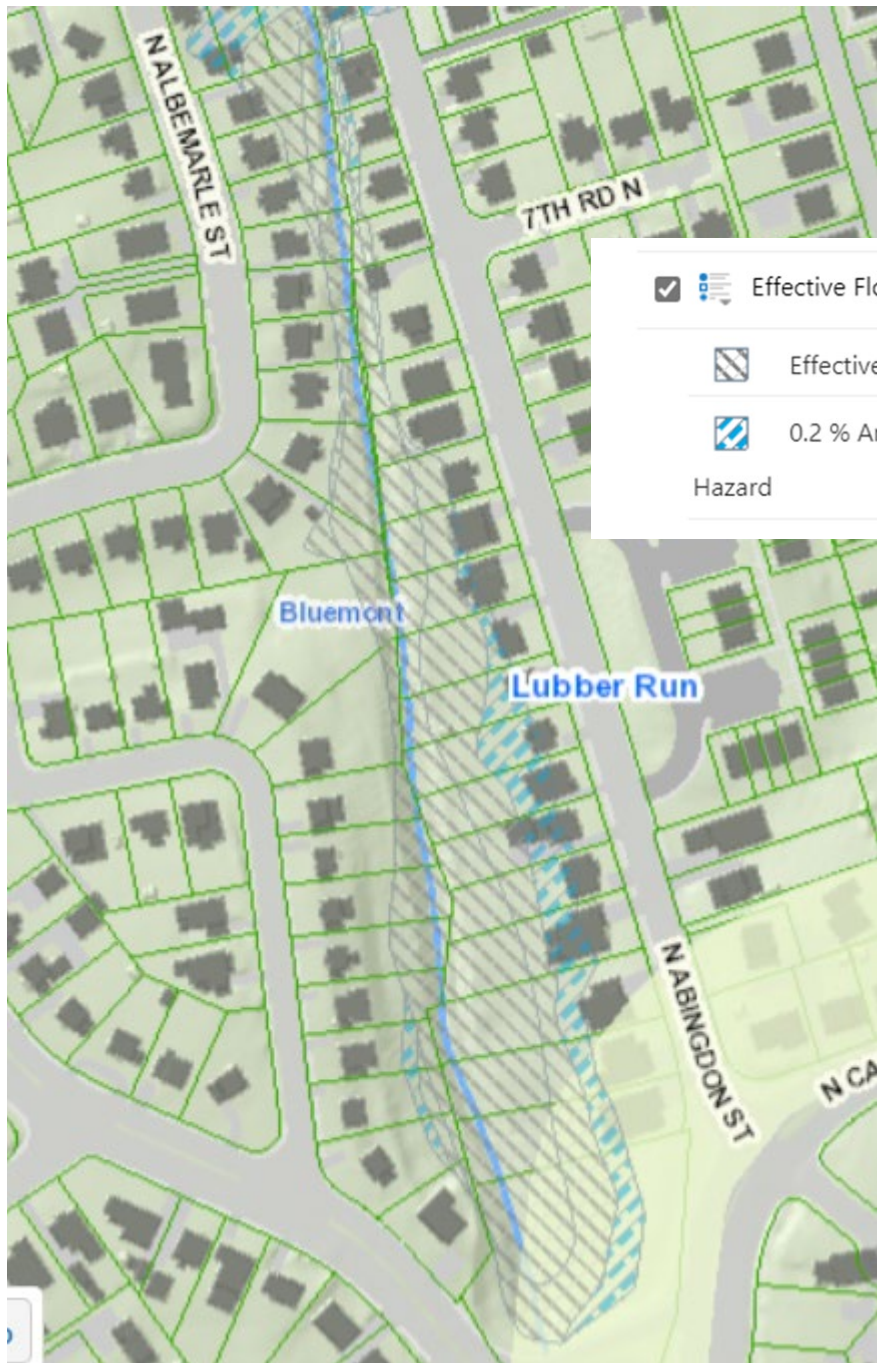
(2020)

A,

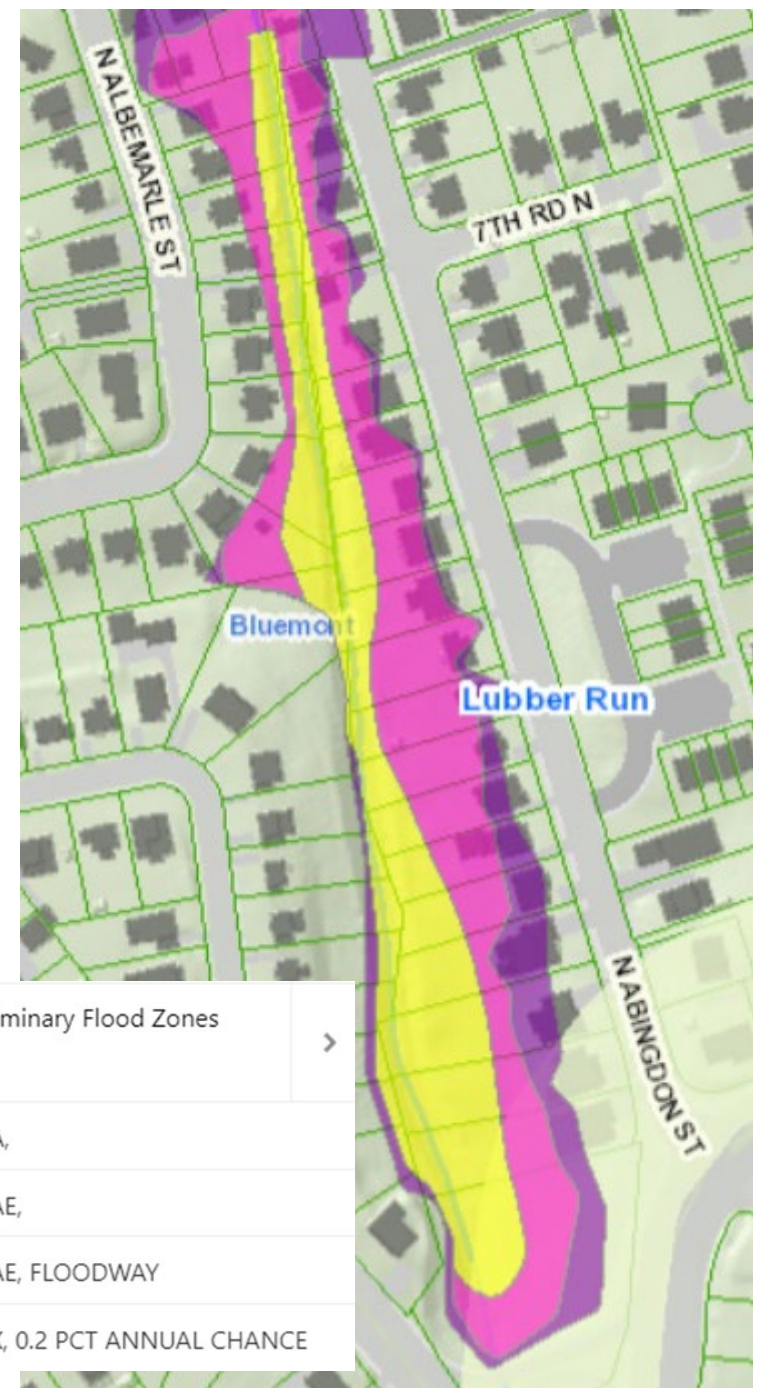
AE,

AE, FLOODWAY

X, 0.2 PCT ANNUAL CHANCE



Note: Preliminary Flood Plain Maps impact homes that front on N Abingdon St.



Planimetric base map information for all FIRM panels was provided in digital format by the Arlington County's GIS Mapping Center. This information was photogrammetrically compiled at a scale of 1"=50' from aerial photography dated September 2003. Digital orthophotographs, published in 2003, were also provided by the Arlington County's GIS Mapping Center. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features to align them to 1":120' digital orthophotographs.

This Countywide Analyses

No new hydrologic analyses were performed for this FIS.

Changes to Preliminary FIRM along N Abingdon St. are due to differences in the topographic data.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided in digital format by the United States Department of Agriculture - Aerial Photography Field Office (USDA - APFO), National Agriculture Imagery Program (NAIP). This information was derived from digital orthophotography at a 2-foot resolution from photography dated 2019. For information about base maps, refer to Section 6.2 "Base Map" in this FIS Report.

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

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22.

CROSS SECTION	DISTANCE	FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			INCREASE
		WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	
Little Pimmit Run Tributary								
A	130 ¹	84	281	1.6	245.8	245.8	246.8	1.0
B	388 ¹	39	78	5.9	249.7	249.7	250.2	0.5
C	644 ¹	31	85	5.4	253.9	253.9	254.2	0.3
D	912 ¹	28	58	8.2	260.1	260.1	260.1	0.0
E	1,081 ¹	20	58	8.0	266.0	266.0	266.3	0.3
F	1,350 ¹	33	108	4.3	270.0	270.0	270.8	0.8
Lubber Run								
A	3,482 ²	60	799	4.8	223.5	223.5	223.5	0.0
B	4,450 ²	127	535	5.7	233.8	233.8	233.8	0.0
C	5,492 ²	23	129	13.0	243.8	243.8	243.8	0.0
D	8,089 ²	125	370	3.0	272.8	272.8	272.8	0.0

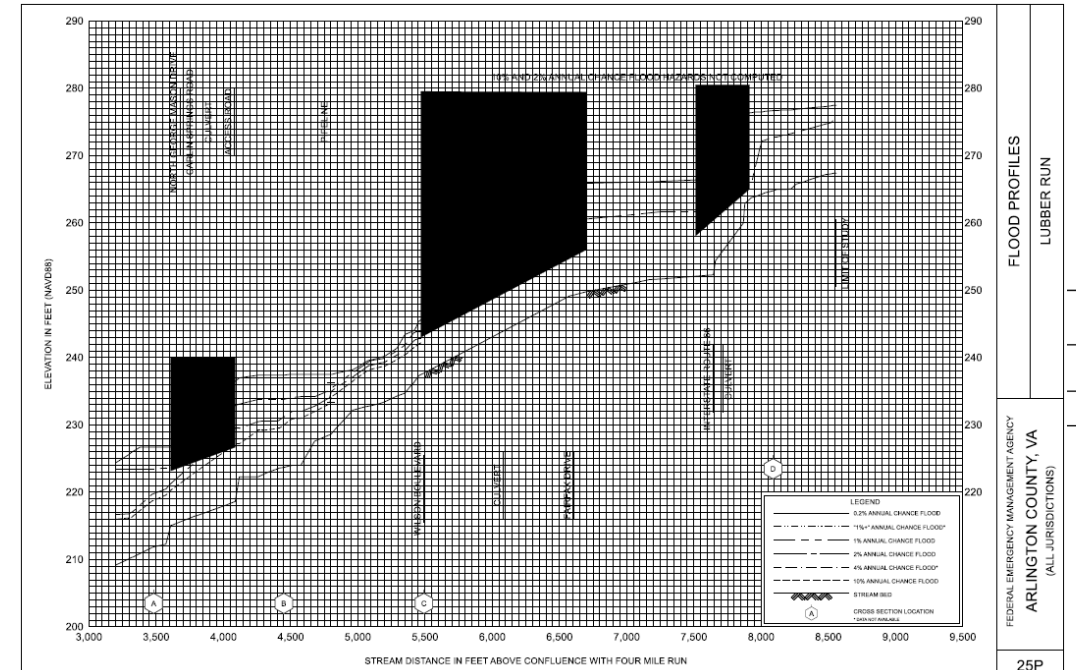
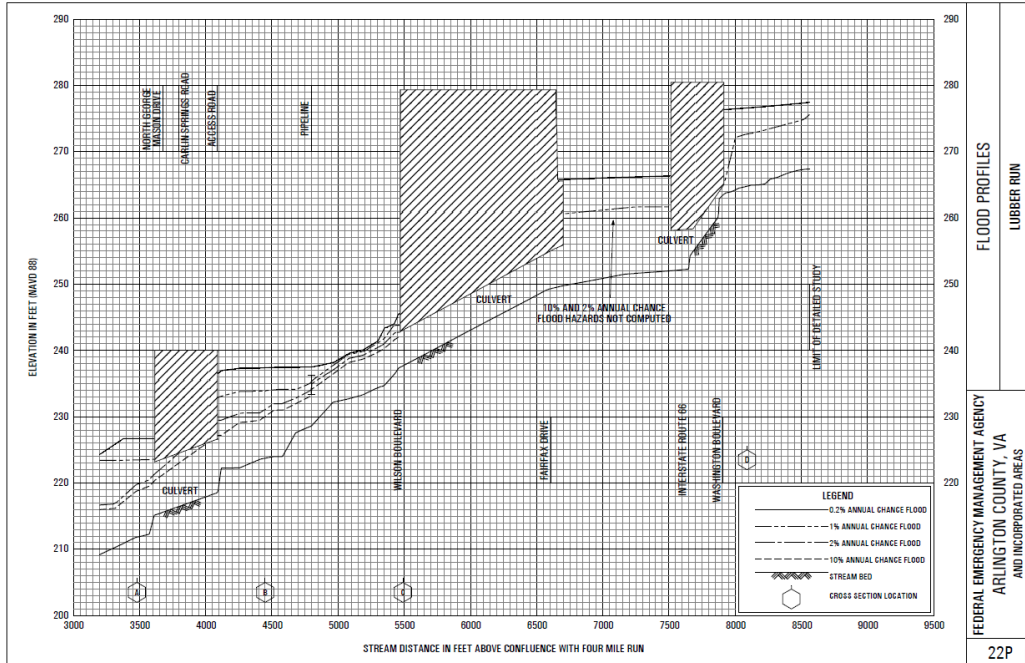
¹Feet above confluence with Little Pimmit Run

No change in elevations

Table 22: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Arlington County	All within Arlington County	Hurricane Sandy Supplemental for National Capital Region (NCR)	11.5 cm RMSEz	1 meter	USGS 2014c

CROSS SECTION	DISTANCE ¹	FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
		WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,482	60	799	4.8	223.5	223.5	223.5	0.0
B	4,450	127	535	5.7	233.8	233.8	233.8	0.0
C	5,492	23	129	13.0	243.8	243.8	243.8	0.0
D	8,089	125	370	3.0	272.8	272.8	272.8	0.0



Flood Insurance Rate Map Update Schedule

9/18/20: Preliminary maps released

October 2020: County notify property owners

11/18/20: Public meeting

11/19 -12/19/20: 30 day general comment period begins after public meeting

Summer 2021: 90 day technical appeal period will begin approximately in July, 2021. Property owner can submit data or technical information to appeal or revise floodplain designation.

Spring 2022 (approx.): FEMA will issue letter of final determination. County will need to update ordinance.

Fall 2022 (approx.): New FIRMS will be effective

What does it mean if your property is in the floodplain?

If you have a mortgage from a federally regulated lender, you are required by Federal law to carry flood insurance when these maps become effective.

Contact your insurance agent to get the best rate and learn about options offered by the National Flood Insurance Program (NFIP) for properties being mapped into higher risk areas for the first time.

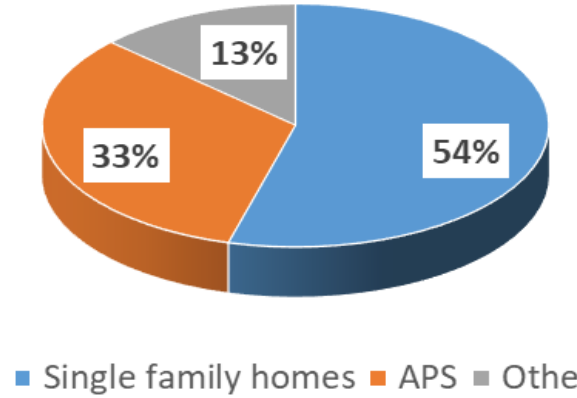
If you do not have a mortgage, you are still strongly recommended to purchase flood insurance. Over the life of a 30-year loan, you are about three times more likely to have a flood in your home than a fire, and most homeowners' insurance policies do not provide coverage for damage due to flooding.

Rates for flood insurance for properties newly mapped into the floodplain will be lower before new maps become effective.

Lot scale: Regulating single family homes

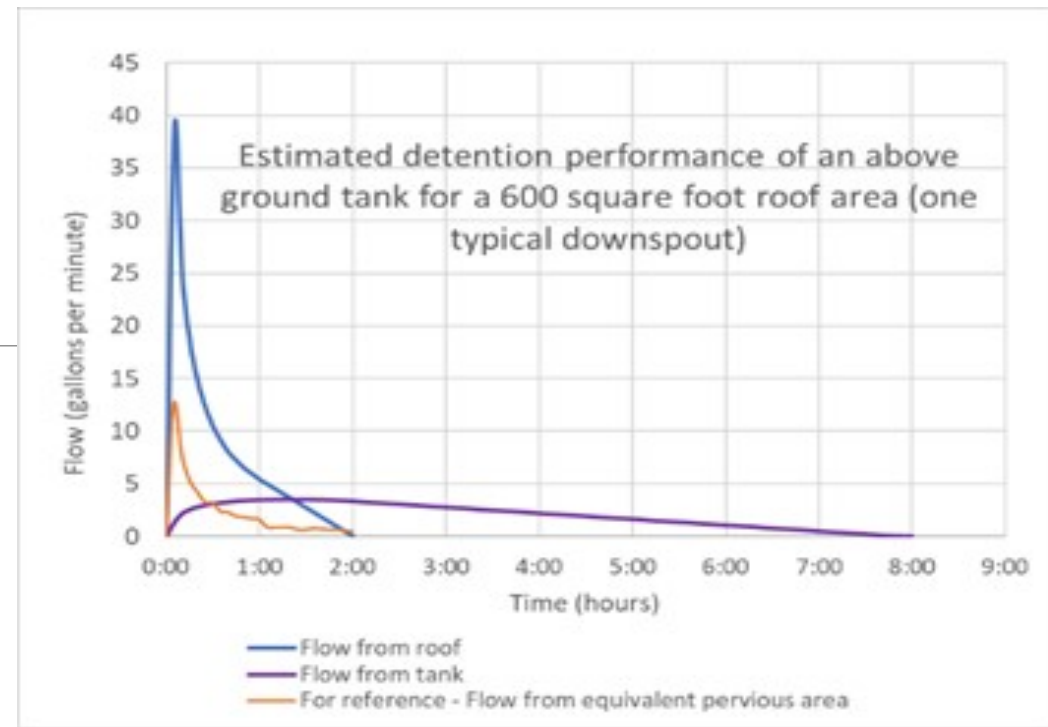
Recalibrating to improve mitigation of off-site impacts in a more demanding development and precipitation environment

Impervious surface increase
Single family development vs other development
Start of FY14 through FY19



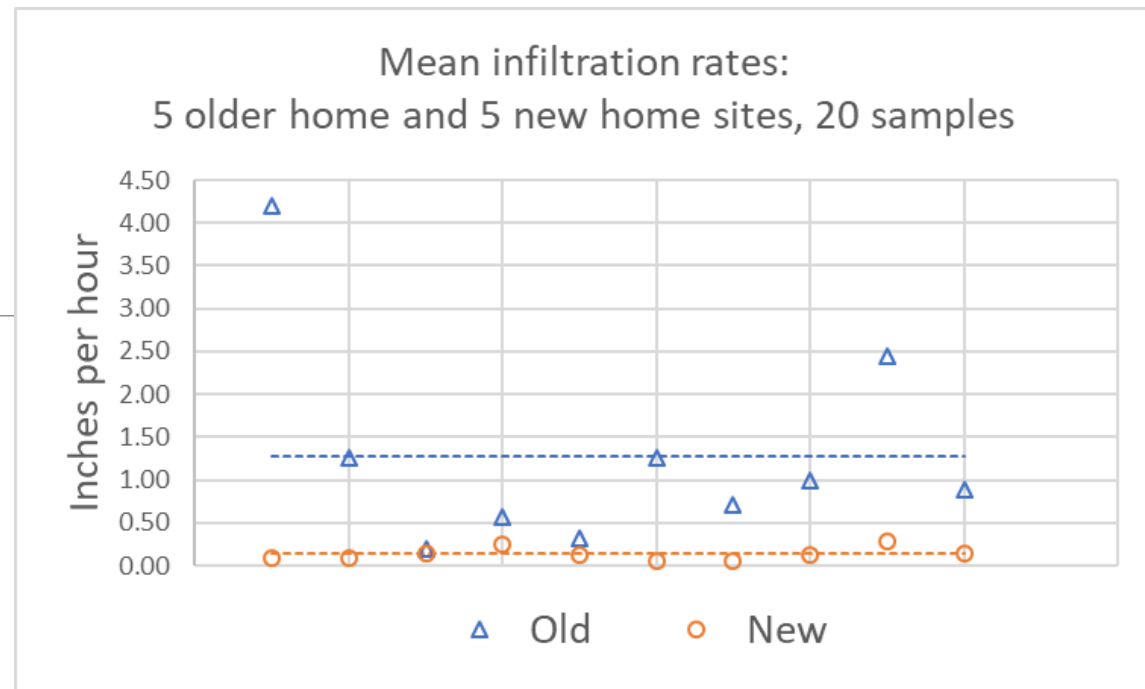
Slow it Down, Soak it In

Promoting strategies to detain runoff and release slowly, as a more robust and more reliable way to handle intense rainfall



Hidden impervious cover

“Soil profile rebuilding”: Require amendment and de-compaction

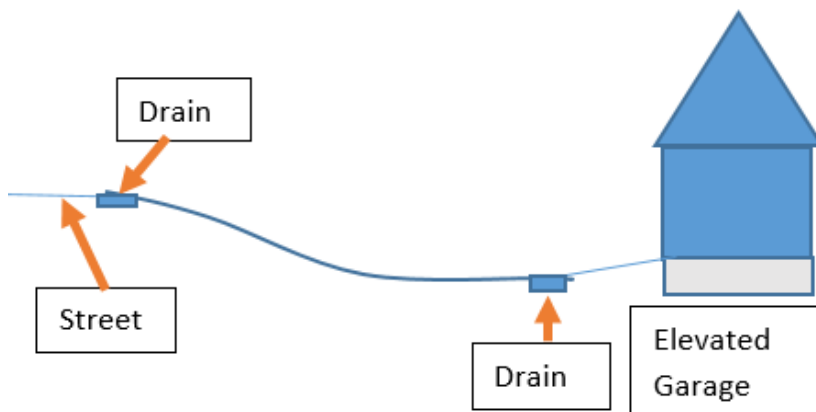


Flood Resilient Arlington Information

- See the Home Flood and Moisture Prevention Checklist on website.
 - <https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/13/2019/02/HOME-FLOOD-AND-MOISTURE-PREVENTION-CHECKLIST.pdf>
- Flood insurance information and more available on County web site: <https://www.arlingtonva.us/flooding/>

Floodproofing Examples

1. Elevate Garage Entrances



2. Protect windows and other openings



3. Do not block water flow paths



Questions?

Demetra McBride

**Bureau Chief, Office of Sustainability and
Environmental Management**

703-228-3612

dmcbride@arlingtonva.us

Elizabeth Thurber, P.E.

Stormwater Infrastructure Program Manger

571-289-2498

Ethurber@arlingtonva.us

Aileen Winqvist

Stormwater Communications Manager

703-228-3610

awinqvist@arlingtonva.us