

Stormwater, Floodplains, and Stream Buffers

CIVIC FEDERATION

FEBRUARY 7, 2017

Stormwater Management Goals

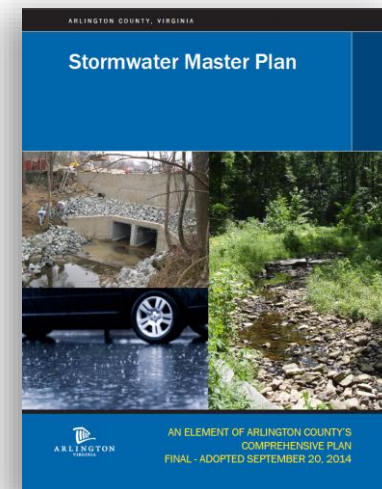
- Reduce threats to public health, safety, and property from flooding
- Reduce impacts of existing and new development on local streams, Potomac River, & Chesapeake Bay
- Comply with all state and federal regulations
- Enforce local ordinances for stormwater detention, Chesapeake Bay preservation, erosion & sediment control, and floodplain management



Stormwater Program



- Storm sewer system improvements – replace/expand
- Building new stormwater treatment facilities
 - Green streets, rain gardens
 - Facilities required for new development
- Prevent pollution
 - Stream restoration
 - Street sweeping, catch basin cleaning
 - Outreach and education
 - StormwaterWise Landscapes



Tighter Stormwater Regulations

- Chesapeake Bay TMDL (2010) requires specific pollutant reductions for each municipality (nitrogen, phosphorus, and sediment)
- New stronger MS4 stormwater permit
- New Stormwater Management Ordinance effective July 1, 2014 (treating stormwater from development projects)



Storm Sewer Capacity Upgrades



John Marshall Drive,
constructed 2013



West Little Pimmit Run, under construction
24th and Rockingham, under construction

New Stormwater Treatment Facilities (Retrofits)



Patrick Henry Green Street

- soon after construction in 2011 (left)
- during dry weather in 2012 (right)

Rain garden at Albemarle St.



Stream Assessment and Restoration Projects



Before



After

Restored reach

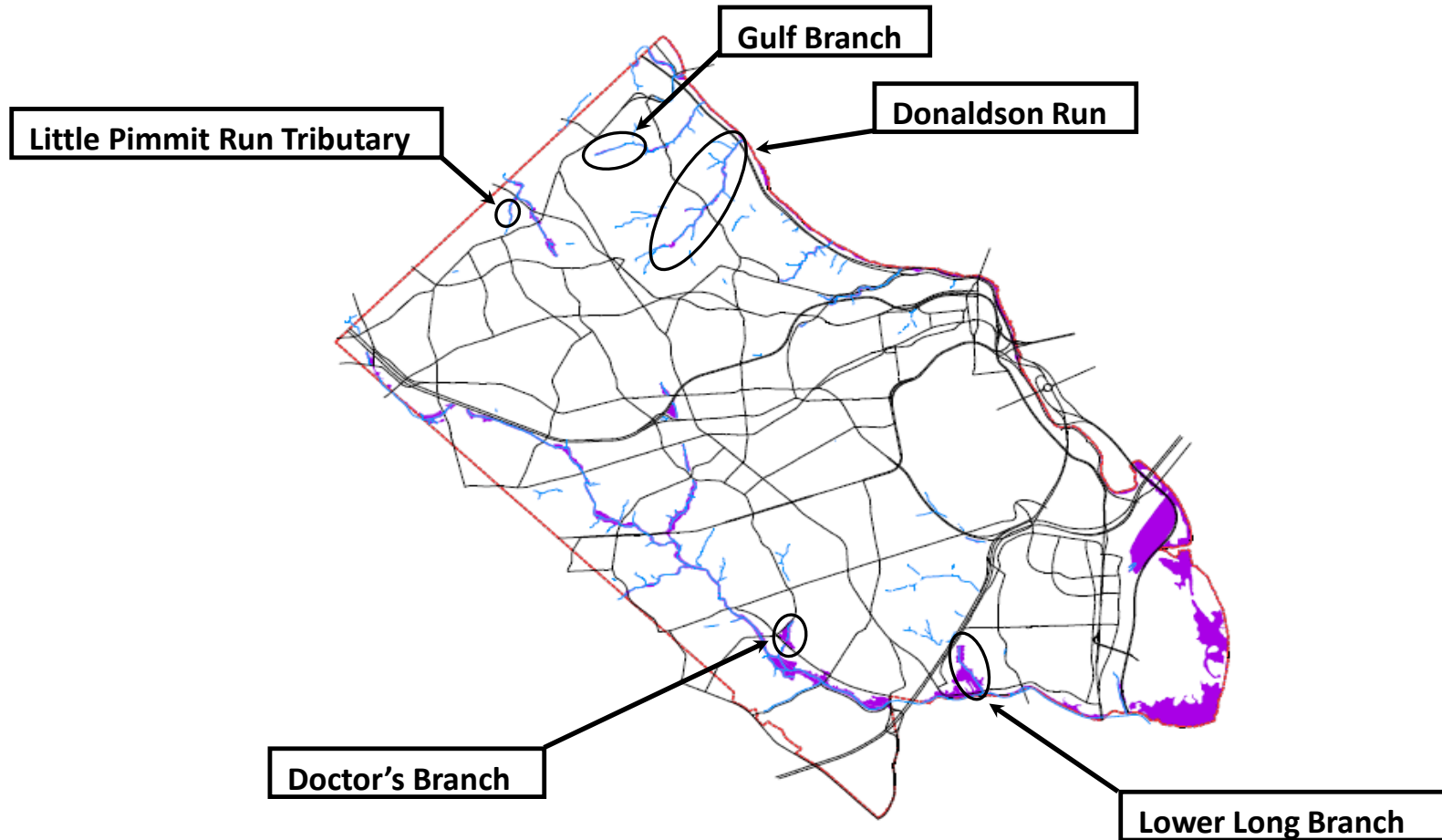


Sediment from un-restored reach

Four Mile Run Restoration



Flood Risk Reduction Studies



Upcoming projects

- Williamsburg Green Streets
- John Marshall Drive and North Kensington Green Streets
- Windy Run Stream Restoration
- Donaldson Run Stream Restoration (Tributary B)
- Ballston Pond Improvements



Floodplain Management and Flood Risk Reduction

- Floodplain Ordinance
- FEMA flood maps
- Floodplain reviews for development projects
- Storm sewer system capacity analysis



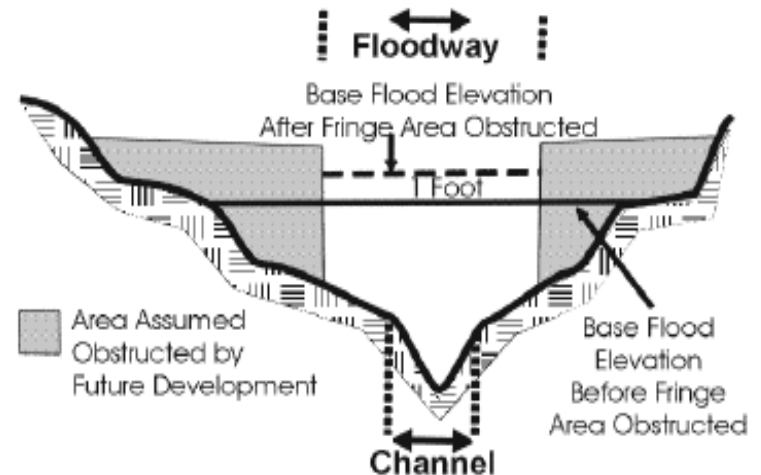
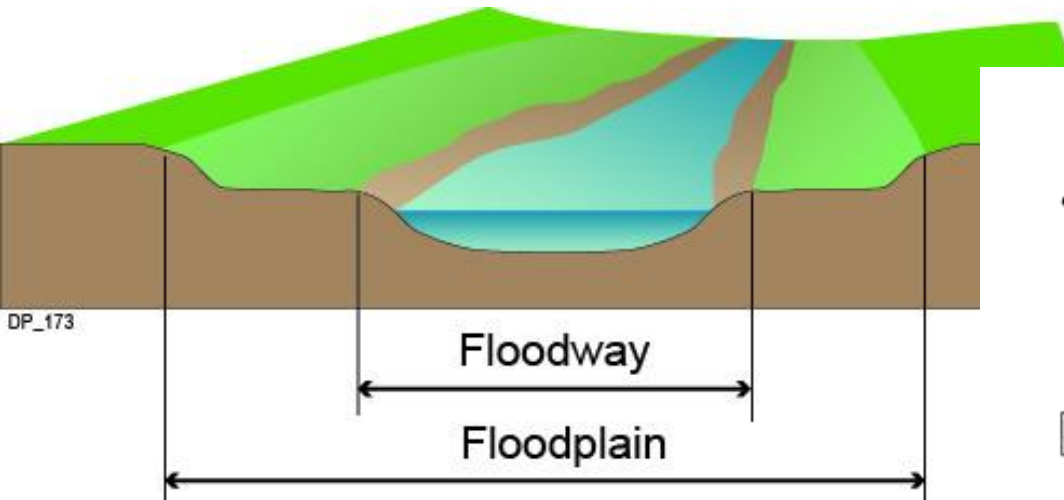


EXAMPLES OF DAMAGE DUE TO FLOODING

What is a Flood Plain?

A relatively flat or low-land area adjoining a river, stream, or watercourse which is subject to partial or complete inundation; or

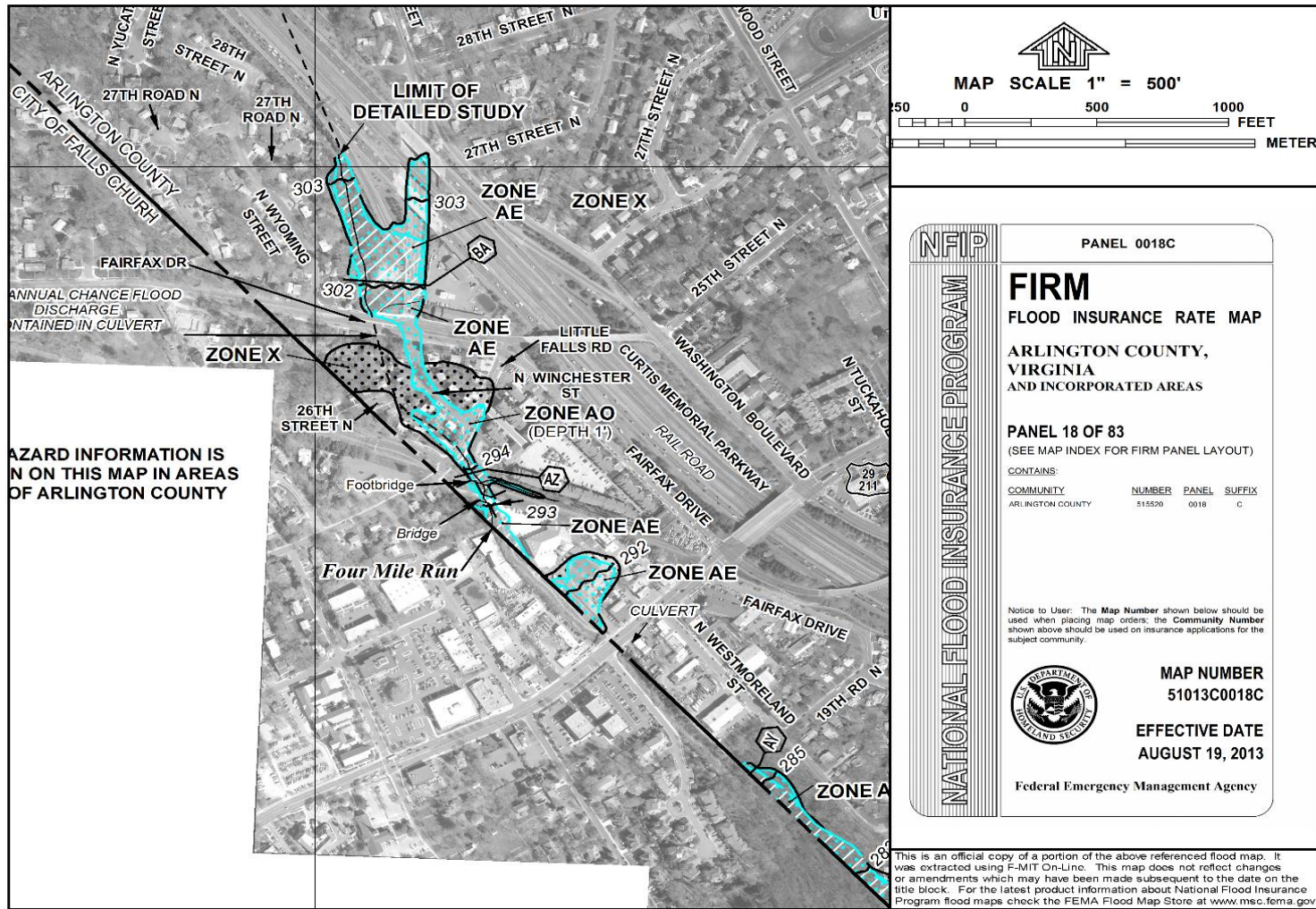
An area subject to the unusual and rapid accumulation of runoff of surface waters from any source.



What is a Flood Plain Map?

What is the Flood Insurance Rate Map?

- Federal Emergency Management Agency (FEMA) publishes flood hazard maps, called Flood Insurance Rate Maps (FIRMs).
- The FIRM shows the areas that are subject to flooding and the risk associated with these flood hazards.
- Rates for flood insurance are based on the FIRM.
- National Flood Insurance Program (NFIP) enables property owners within a participating community to purchase flood insurance protection against losses from flooding.



Flood Map Example

What does the FIRM Mean?

- One of the areas shown on the FIRM is a Special Flood Hazard Area (SFHA) - an area that has a 1-percent or greater chance of flooding in any given year.
- This area is also referred to as the 1-percent-annual-chance floodplain, base floodplain, or the 100-year floodplain.
- Maps for your property can be created at the FEMA website:
 - <http://msc.fema.gov>

What if the FIRM shows a Special Flood Hazard Area on my property?

- You may be required to buy flood insurance by your lender.
- You may want to buy flood insurance, even if you are not required to do so.
- You may want to consider flood-proofing your property.
- There may be limitations on certain types of development on your property, or additional steps might be required during the development process.



Floodplain Development

- Permits are required for floodplain development.
- The lowest floor of any structure should be at or above the base flood elevation (BFE).
- The concepts of substantial damage and improvement must be enforced.
- Development cannot cause any increase in BFE in the floodway or create a flood hazard.



How many properties are affected in Arlington?

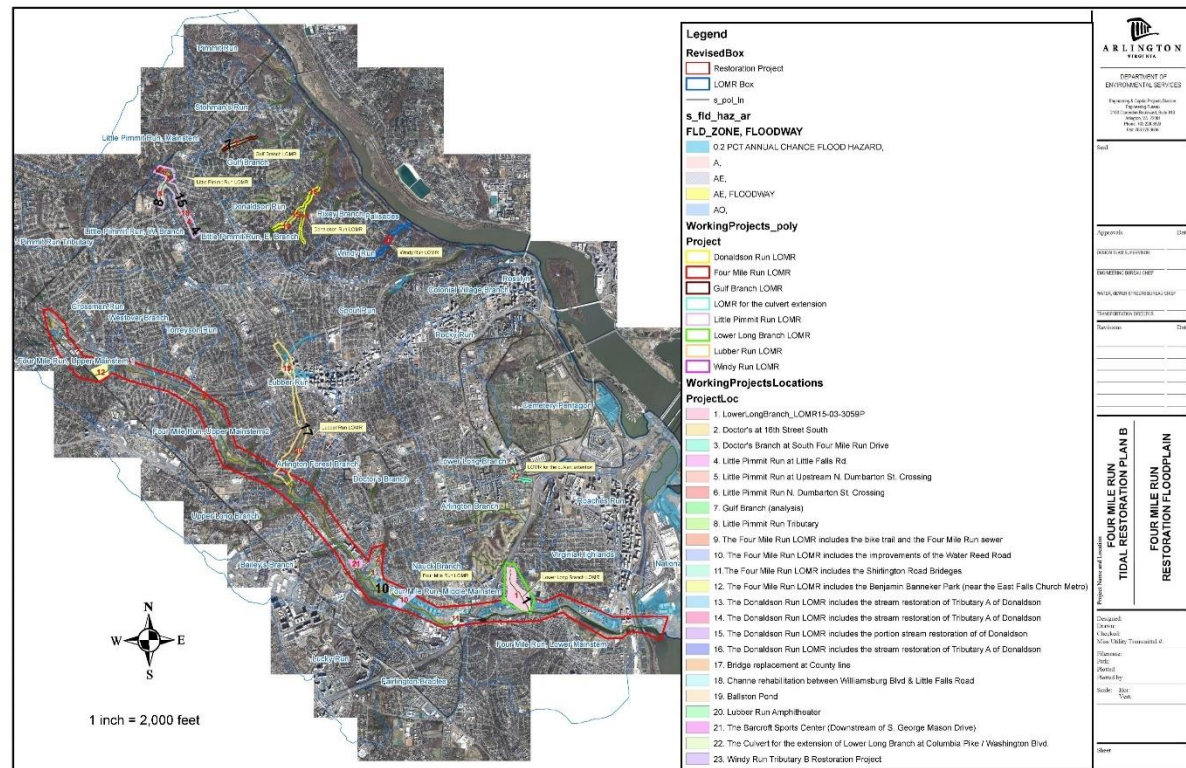
- Approximately 760 parcels are located in Special Flood Hazard Areas – less than 3% of the ~35,000 total parcels in the County.
- Many impacted parcels are in parks and do not have buildings on them. Others are only slightly impacted and for those parcels, there are simple procedures to exempt the structure from the SFHA.
- A smaller number of properties are more significantly impacted, and this is why the County is doing flood risk reduction studies and projects to reduce flood risks where feasible.

How is a FIRM revised?

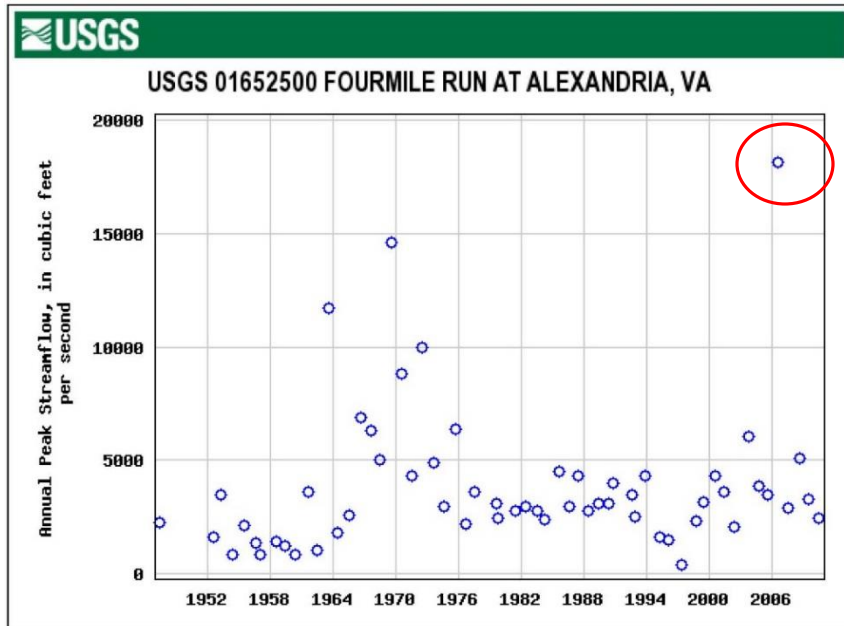
- FEMA can initiate a revision (as occurred in 2013)
- The local community can initiate a revision
 - Physical Map Revision (PMR) – Revises entire map. A long process (18 months – 2 years), including lengthy public comment periods.
 - Letter of Map Revision (LOMR) – revises a portion of a map via Part 65 of the NFIP

What is Arlington County doing now to update the FIRM maps?

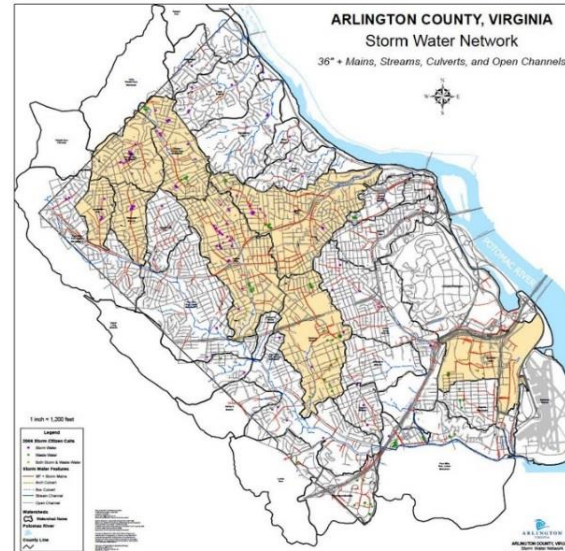
- Updating the Four Mile Run hydrologic models (in cooperation with NVRC)
- Restudying multiple streams in order to update FIRM maps
- Priority based on *Stormwater Master Plan* and # of impacted parcels



Flood Risk Reduction – Capacity Studies



Capacity Analysis Scope



- 7 Watersheds
 - Crossman Run
 - Westover Branch
 - Little Pimmit Run
 - Lubber Run
 - Doctor's Branch
 - Spout Run
 - Roaches
- Modeled 36% of the land area to be modeled
- Modeled 45% of pipes 36" diameter and larger to be modeled
- Majority of the June 2006 calls are from these watersheds
- Study Results were adopted with the Stormwater Masterplan in September 2014

June 2006 storm exceeded flows in Four Mile Run from Hurricane Agnes in 1972, and is the event of record.

A capacity study of the storm drainage system was undertaken to identify areas for capital improvements.

Resource Protection Area Map Update

What is protected by Resource Protection Area?

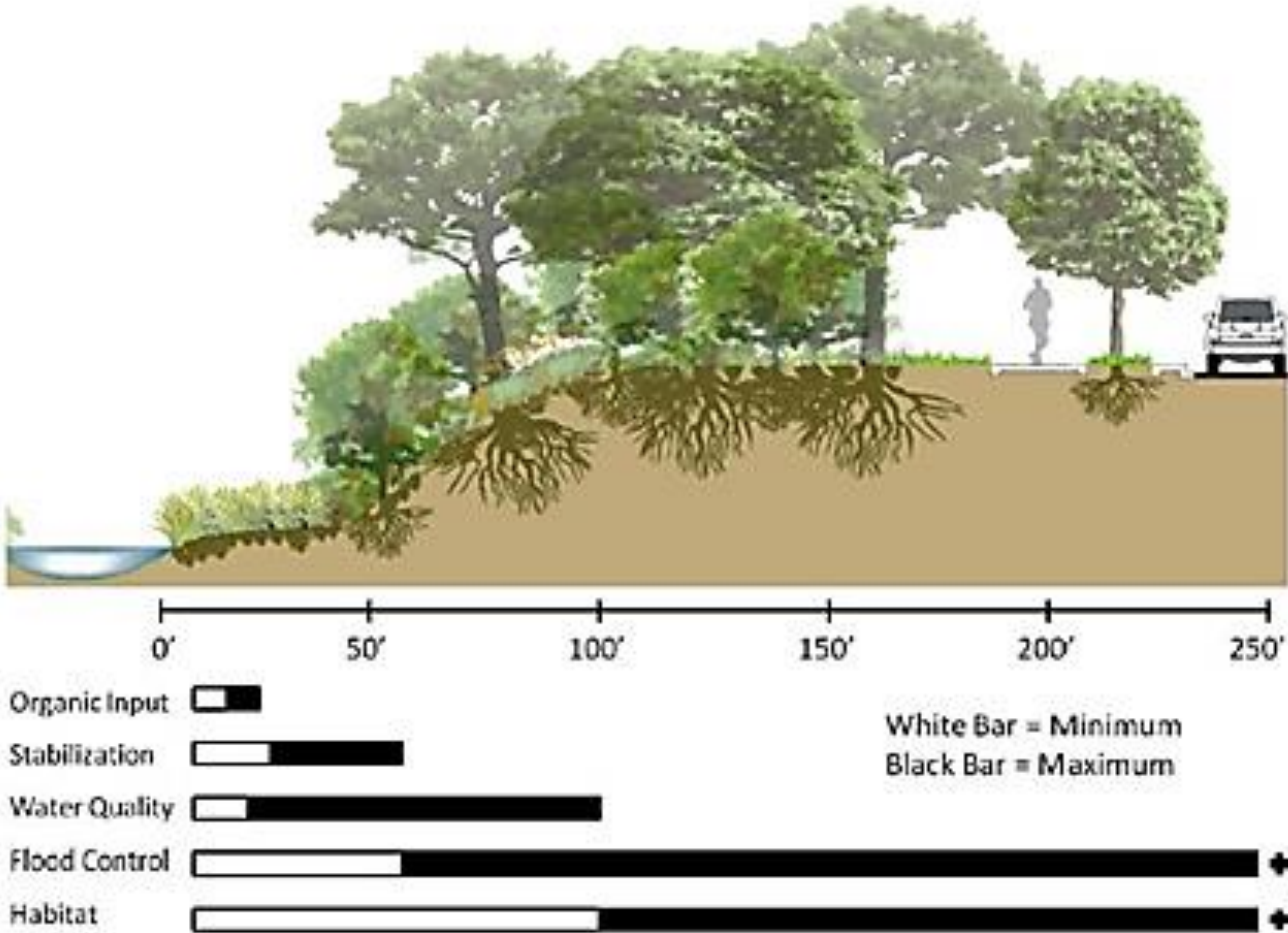
- All natural stream channels
- Man-made stream channels
- Tidal wetlands and non-tidal wetlands connected to tidal wetlands or to a perennial stream
- A 100-foot wide “buffer” adjacent to these features
- Buffer can be wider in areas with steep slopes



Why does Virginia require localities to establish Resource Protection Areas?

- Regional effort to improve Chesapeake Bay health
- Protects waterbodies directly during development
- Creates “buffers” for environmentally sensitive areas that provide critical ecosystem functions and protect the health of streams and other waterbodies.
- Stream buffers also help reduce flood and erosion risks to structures.

Functions of the RPA buffer



Proposed RPA Map Update

2017



RPA Map Update – Why Now?

- The map must be updated periodically to comply with state law and the County's Chesapeake Bay Preservation Ordinance.
- The RPA map was last updated in 2003 and new information is available from recent assessments.
 - Natural Resources Inventory in 2008.
 - Updated stream assessment and storm sewer mapping provided for *Stormwater Master Plan* in 2014.
- Ensures equitable plan review during development.
- Provides accurate information regarding properties to owners and the real estate and development communities.

RPA Map Update 2017

- About 1,500 properties currently have a designated RPA
- 256 will have RPA removed
- 243 will have RPA added
- Others will have RPA modified
- 1,200 or approximately 3% of all single family properties are in the RPA

What's allowed in the RPA?

- Repairs, gardening and maintenance work.
- Removal of dead, dying or hazardous trees/shrubs and non-native invasive or noxious vegetation.
- Work that requires County approval:
 - Adding new paved surfaces or buildings within the RPA
 - The removal of trees with a diameter > 3 inches
 - *The disturbance of more than 2,500 square feet of land*
- An **exception** may be required for some projects.

Proposed Timeline to Update the RPA Map

- Initial property owner notification – July 1, 2016
- Public meetings – July, 2016 and March, 2017
- Additional public outreach – Spring, 2017
- Planning Commission – May/June, 2017
- County Board – May/June, 2017
- New map takes effect – January, 2018

For additional information:

Aileen Winquist

703-228-3610 awinquist@arlingtonva.us

Elizabeth Thurber, P.E.

703-228-3363 Ethurber@arlingtonva.us

Christin Jolicoeur

703-228-3588 Cjolicoeur@arlingtonva.us