

**FAIRFAX COUNTY PLANNING COMMISSION  
ENVIRONMENT COMMITTEE/  
ENVIRONMENTAL QUALITY ADVISORY COUNCIL MEETING  
WEDNESDAY, OCTOBER 15, 2008**

**COMMITTEE MEMBERS PRESENT:**

Jay P. Donahue, Dranesville District  
Earl L. Flanagan, Mount Vernon District  
James R. Hart, Commissioner At-Large, Chairman  
Kenneth A. Lawrence, Providence District  
Timothy J. Sargeant, At-Large

**COMMITTEE MEMBERS ABSENT:**

Walter L. Alcorn, At-Large  
Frank A. de la Fe, Hunter Mill District  
Rodney L. Lusk, Lee District

**ENVIRONMENTAL QUALITY ADVISORY COUNCIL MEMBER PRESENT:**

Stella Koch, At-Large, Chairman

**PLANNING COMMISSION STAFF PRESENT:**

Sara Robin Ransom, Assistant Director, Planning Commission Office  
Linda B. Rodeffer, Clerk to the Planning Commission

**OTHER STAFF PRESENT:**

Michelle Brickner, Director, Site Development Services, DPWES  
John Friedman, Director, Code Analysis, Land Development Services, DPWES  
Judith Cronauer, Code Analysis, Land Development Services, DPWES  
Matthew Meyers, Stormwater Management, DPWES  
Noel Kaplan, Planning Division, Department of Planning and Zoning

**OTHERS PRESENT:**

Inda Stagg, Walsh, Colucci, Lubeley, Emrich and Walsh, PC  
Michael Rolband, Wetlands Studies and Solutions, Inc.

**ATTACHMENT:**

PowerPoint Presentation, Riparian Buffers Upstream of RPAs

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Chairman James R. Hart called the meeting to order at 7:02 p.m.

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Commissioner Flanagan MOVED THAT THE ENVIRONMENT COMMITTEE MINUTES OF SEPTEMBER 18, 2008 BE APPROVED.

Commissioner Donohue seconded the motion which carried unanimously.

Chairman Hart announced a work group meeting would be held tonight to discuss protection of riparian buffers upstream of resource protection areas (RPAs). Judith Cronauer, Code Analysis, Land Development Services, Department of Public Works and Environmental Services (DPWES), delivered a PowerPoint presentation, as shown in the attachment. She said the purpose of the workgroup was to develop criteria around which regulations might be constructed based on research and stakeholder feedback.

Ms. Cronauer addressed the following topics:

- Considerations in evaluating a regulatory approach
  - Benefits of buffering ephemeral and intermittent streams
  - Challenges to requiring buffers on ephemeral and intermittent streams
  - Stakeholder feedback
  - Considerations identified by staff
- How far upstream
  - Research
  - Stakeholder feedback
  - Regulations of other jurisdictions
  - Options developed by staff
    - Establish a drainage area
    - Designate intermittent streams only
    - Designate both ephemeral and intermittent streams
- Mapping
  - Options
    1. No mapping by County staff; property owner to establish buffer area using a defined protocol
    2. Approximate defined channels through GIS with no further verification
    3. Field map a representative area using a protocol and determine an appropriate drainage area
    - 3A. Establish drainage area based on existing sample study and no field work
    4. Field map entire County using Ordinary Highwater Mark (ephemeral And intermittent streams)
    5. Field map entire County using North Carolina protocol to identify intermittent streams
  - Stakeholder feedback
  - Regulations of other jurisdictions
  - Options developed by staff
    - Recommend Options 3A (least expensive) or 3 because they would eliminate uncertainties over whether a stream was intermittent or ephemeral, promote consistent review and enforcement, and allow for notification of affected property owners.

- Did not recommend options that entailed field determination for the entire County due to expense and length of time to complete field work.

Ms. Cronauer and John Friedman, Code Analysis, Land Development Services, DPWES, responded to a question from Stella Koch, At-Large, Chairman, EQAC, about the definition of a drainage area. After a brief discussion, Chairman Hart said it would be helpful to understand how drainage area mapping would be done. Ms. Cronauer said staff would provide that information if the committee chose that approach.

Responding to a question from Chairman Hart, Ms. Cronauer recommended that the options be narrowed down before advertising. Ms. Brickner agreed because it would be difficult to develop Code language for all of them.

Commissioner Lawrence recommended that since the project would be limited at this time due to budgetary constraints, an incremental approach be developed.

Ms. Koch, noting that County residents were very concerned about flooding caused by the lack of buffers, recommended that the primary goal of the project be focused on protecting County streams first, then improving the water quality of the Chesapeake Bay. Commissioner Lawrence said the two were not mutually exclusive.

Mr. Rolband said in addition to buffer protection, stormwater management regulations, particularly for redevelopment, needed to be revised to protect streams.

A lengthy discussion took place about mapping options.

Commissioner Sargeant said it was important to be able to measure the success of the regulations. Ms. Cronauer replied that success had not been measured in other jurisdictions, but they felt that riparian buffers were a good attribute environmentally. She pointed out that the other jurisdictions, which did not have the density of Fairfax County, had not gone beyond intermittent streams. She added that it was difficult to measure success from an environmental perspective.

Mr. Rolband said if the goal was to protect intermittent streams, a sample of a physiographic region and a development intensity area could be used to do a statistical analysis on drainage areas versus intermittent streams and then decide what comparables to accept as a goal. He said this would provide, from a scientific and engineering standpoint, a defensible argument and landowners could depend upon that percentage.

Chairman Hart asked if using a certain drainage area would allow a financially achievable approximation of protecting intermittent streams. Mr. Rolband said it would.

Ms. Koch said it had taken 40-50 years to get streams into the current conditions and it would take 80-90 years for them to heal. Responding to a question from Commissioner Sargeant about what kind of recovery could be achieved, Ms. Koch said that streams could be restored to the

point where they would not create downstream problems but the goal would not be the same for all parts of the County.

Mr. Myers and Mr. Rolband responded to a question from Chairman Hart about the possibility of a mathematical variable for the size of drainage areas under different conditions.

Chairman Hart summarized the discussion as follows:

- Establish a drainage area due to current budget constraints and staff time instead of defining and mapping intermittent and ephemeral streams.
- Consider having several drainage areas for different profiles of the County.
- Recognize that the project is partially budget-driven and if more money becomes available, a more definitive analysis could be conducted.
- Agree to pursue Options 3 and 3A subject to further analysis of drainage area variables.
- Recognize the goal is to protect County streams and consequently the Chesapeake Bay, with minimal impact to property owners.

Mr. Friedman and Mr. Myers responded to a question from Commissioner Sargeant about phasing the project due to costs associated with County-wide mapping because it would provide an opportunity to get more detailed information in the future.

Mr. Rolband reiterated that stormwater management policies should be reviewed because the current regulations had destroyed streams.

It was decided that buffer width, reforestation, preservation, and permitted uses would be discussed at the next meeting on October 23, 2008 at 7:00 p.m.

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The meeting was adjourned at 8:32 p.m.  
James R. Hart, Chairman

An audio recording of this meeting is available in the Planning Commission Office, 12000 Government Center Parkway, Suite 330, Fairfax, Virginia 22035.

Minutes by: Linda B. Rodeffer

Approved: December 10, 2008

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Linda B. Rodeffer, Clerk  
Fairfax County Planning Commission



# Workgroup Meeting Riparian Buffers Upstream of RPAs

October 15 & 23, 2008

Presentation to the Planning Commission  
Environment Committee and Members of  
Environmental Quality Advisory Council



# **INTRODUCTION AND BACKGROUND**

# Background

- Board's request - Regulatory approach to extending riparian buffers upstream of RPAs.
- Staff reviewed current research, regulations in other jurisdictions and mapping options (handout).
- Stakeholder meetings were held to obtain stakeholder input (handout).

# The Workgroup

- Purpose – to develop criteria around which regulations might be constructed based on research, stakeholder feedback and possible options developed by staff.
- Oct. 13 - considerations, how far upstream, mapping, buffer width and more, if possible
- Oct. 23 – permitted uses and preservation/reforestation

# Presentation for Each Criterion

- General
- Research, if relevant
- Stakeholder Feedback (Top Concerns)
- Other Jurisdictions in Virginia
- Options Developed by Staff
- Workgroup Recommendation

# **CONSIDERATIONS**

# Considerations in Evaluating Options

- What considerations are there regarding the establishment of a regulatory approach?

# Research

- Benefits of buffering ephemeral and intermittent streams
  - Ecological links
  - Storage and recharge capacity
  - Water quality improvement
  - Trapping of sediment and reducing channel erosion
  - Biodiversity
  - Terrestrial and aquatic habitat
  - Moderation of stream temperature

# Research (cont.)

- Challenges to requiring buffers on ephemeral and intermittent streams
  - Identification of streams to be protected, especially ephemeral (where does ditch start and stream begin?) (Wenger and Fowler 2000).
  - Increased demand on local program resources to enforce the regulations (CWP 2007).
  - Area for buffers more limited after urban development has taken place (Schueler 2000).

# Stakeholder Feedback

- Financial impact to property owner as well as county.
- Impact on use of property.
- Enforcing the regulations.
- Determine goal of regulations.
- Notify affected property owners.
- Incentive to homeowners.
- Education and outreach rather than a regulatory approach.
- Comprehensive approach needed.
- Review effectiveness of other local programs.
- Change the adequate outfall requirements to improve the function of the buffer (sheet flow, level spreaders).

# Considerations Identified by Staff

- Majority of ephemeral and intermittent streams are located in already developed areas – community common area (already somewhat protected) or homeowner's yards (impacting use of property).
- Additional costs associated with mapping, reviewing and enforcing the regulations.
- Goal of regulations.

# Staff Considerations (cont.)

- Notification to affected property owners.
- Balancing the impact on property owners and the costs and complexity of regulations with the benefits to be gained.
- Impacts of enforcement.
- Community acceptance of property restrictions.

# Workgroup Recommendations

- Are there any additional considerations that the workgroup would like to add?
- Return to this topic after we develop the criteria to see if we have addressed the considerations, and/or should they be included in the recommendation to the Board.

**HOW FAR UPSTREAM?**

# How far upstream?

- Intermittent streams only.
- Ephemeral and intermittent streams.
- Site specific decision (evaluate each site independently).
- Drainage area.

# Research

- Difficult to determine where an ephemeral stream ends and a ditch or a channel begins (Wenger and Fowler 2000).
- At a minimum perennial and intermittent streams should be buffered (Wenger and Fowler 2000).
- Guideline recommends protection of intermittent and perennial, but has stricter requirements for streams which are intermittent and have a drainage area  $\geq 75$  acres, and for perennial streams (Montgomery County, PA).

# Stakeholder Feedback

- A goal should be established and it should be determined how effective the extension of riparian buffers would be at meeting this goal.
- Site specific factors should be used to determine whether or not riparian buffers should be required.
- Ephemeral and intermittent streams should be included.

# Other Jurisdictions in Virginia

- The City of Alexandria has restrictive buffers on both perennial (100 feet) and natural intermittent streams (50 feet) (depicted on maps).
- Arlington County requires a riparian buffer on perennial as well as all natural stream channels and man-made open channels that are depicted on the county's storm sewer map.
- Henrico County has Stream Protection Area requirements (50 feet wide) for drainage areas  $\geq 100$  acres in addition to RPA requirements (level spreaders are required to promote sheetflow through the buffer).

**HOW FAR UPSTREAM**

# Other Counties in Virginia (cont.)

- Albemarle County extends stream buffers (100 feet wide) to intermittent streams in their Water Supply Protection Area (depicted on USGS map and field verified).
- Stafford County is proposing a Potomac River Resources Overlay District which includes intermittent streams and contains adjacent areas with critical slopes and highly erodible soils. Existing conditions plan would be required for each site in the overlay district showing intermittent streams, slopes and soils.

# Options Developed by Staff

- Establish a drainage area
  - Easily defined point.
  - Does not reflect all intermittent streams since intermittent streams have variable drainage areas.
  - Eliminates any uncertainties over whether the stream is intermittent or ephemeral. Promotes consistent review and enforcement.
  - Easier to administer. Coincides with least expensive mapping option.

# Options Developed by Staff (cont.)

- Intermittent streams
  - Expensive to map.
  - Difficult to establish a defined point between ephemeral and intermittent (transitional area).
  - Approximately 200 miles of additional stream protected.
  - Impacts less lots and buildings than if both ephemeral and intermittent streams were regulated.
- Ephemeral and intermittent streams
  - Expensive to map.
  - Difficult to establish a defined point (where a ditch ends and an ephemeral stream starts).
  - Approximately 400 miles of additional stream protected.
  - Impacts more lots and buildings than if just intermittent streams were regulated. **HOW FAR UPSTREAM**

# **Workgroup Recommendation**

**HOW FAR UPSTREAM**

# MAPPING

# Mapping Option 1

No mapping by county staff, burden on property owner to establish buffer area using a defined protocol.

- County staff resources would not be expended to map new buffer areas.
- Property owner would not know impact to his/her property until their site is delineated.
- Impact to County staff workload to review the work of the professional.

# Mapping Option 2

Approximate defined channels through GIS with no further verification.

- Less staff hours and time than using field work to establish streams.
- Approximation of location of defined channels to give property owners an indication of possible impacts.
- Some streams could be missed.
- Puts onus on property owners to determine more precise location of intermittent streams
- Impact to County staff workload to review the work of the professional

# Mapping Option 3

Field map a representative area using a protocol and determine an appropriate drainage area.

- Less staff hours and time to complete than field investigating the entire county.
- Easily defined point.
- Does not reflect all intermittent streams since intermittent streams have variable drainage areas.
- Eliminates any uncertainties over whether the stream is intermittent or ephemeral. Promotes consistent review and enforcement.

# Mapping Option 3A

## Drainage Area

Establish drainage area based on existing sample study and no field work.

- Would require least amount of staff hours and time since no field work would be necessary.
- Easily defined point.
- Does not reflect all intermittent streams since intermittent streams have variable drainage areas.
- Eliminates any uncertainties over whether the stream is intermittent or ephemeral. Promotes consistent review and enforcement.

# Mapping Option 4

Field map entire county using Ordinary Highwater Mark (ephemeral and intermittent streams).

- More staff hours and time than Options 1 through 3A.
- Reflects ephemeral and intermittent streams (bed and bank condition).

# Mapping Option 5

Field map entire county using North Carolina protocol to identify intermittent streams.

- Requires the most staff hours and time of any of the options.
- Provides the most detailed and accurate mapping of the intermittent streams.

# Stakeholder Feedback

- Any establishment of the limits of the riparian buffer should be definitive and that stream classification and definitions should be consistent with the Federal and state regulations.
- Mapping should delineate areas based on the ecological value of the stream and whether reforesting the buffer area would be desirable.
- Maps should be definitive and a delineation methodology should be established.

# Other Counties in Virginia

- Henrico County established a drainage area of 100 acres for inclusion in the Stream Protection Area.
- Albemarle County uses intermittent streams as depicted on the USGS map as dashed or dotted blue lines and is field verified.
  - drainage area of at least 5 acres
  - defined bed and banks where bed/channel material and vegetation are distinct from the surrounding valley or swale (e.g. the channel has a rock stream bed versus matted down grass or an eroded ditch).

# Options Developed by Staff

- Option 3A - Establish drainage area based on existing sample study and no field work.
  - Least expensive of the options that provides a mapped system
  - Eliminates any uncertainties over whether the stream is intermittent or ephemeral. Promotes consistent review and enforcement.
  - Allows notification of affected property owners. Property owner will have a good idea whether or not his property is affected by the regulations.
  - Does not reflect ephemeral or intermittent streams but protects streams with drainage areas of a certain size or greater.
  - *Balance length of headwater streams protected with the impact to homeowners.*

# Options Developed by Staff (cont.)

- Option 3 - Field map a representative area using a protocol and determine an appropriate drainage area.
  - Would more closely reflect the limits of intermittent stream, however drainage areas are variable for intermittent streams. *Drainage areas for ephemeral or intermittent streams are too variable to reflect the type of stream accurately.*
  - More expensive than Option 3A and would take a year to complete the mapping if resources could be allocated.

# Options Developed by Staff (cont.)

- Do not recommend options that entail field determination for the entire county [(Exact reflections of intermittent streams (North Carolina protocol) or ephemeral and intermittent (Ordinary Highwater Mark)]
  - Expensive in comparison to drainage area options
  - Would take 18 months to 2 years to complete.

# Workgroup Recommendation

**MAPPING**

**BUFFER  
WIDTH**

# Buffer Width

- If fixed, how wide should the buffer be?
- If variable, what factors should guide the width of the buffers and what should the range be?

# Research

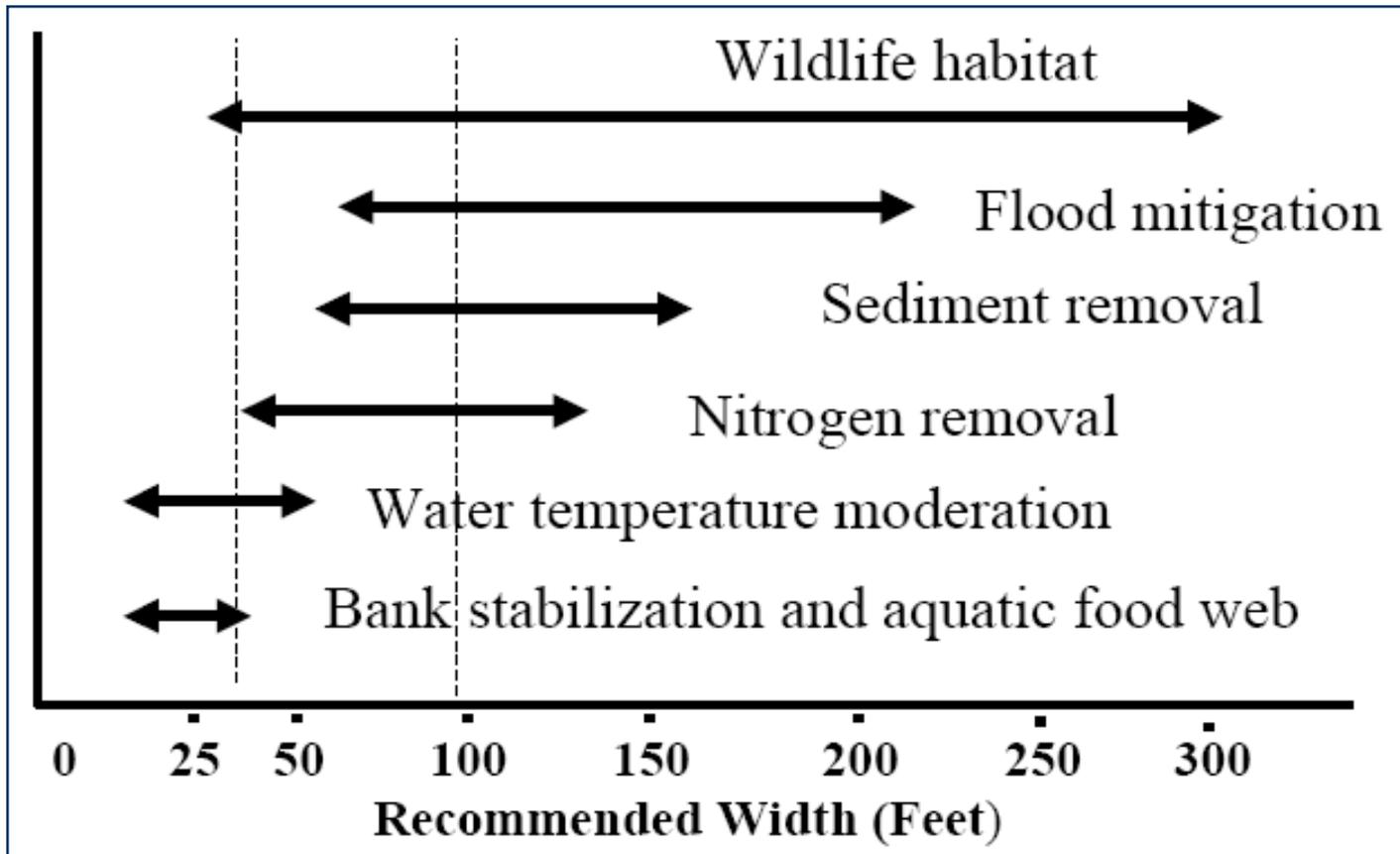
- Most scientific recommendations for minimum buffer widths range from 50 feet to 100 feet (Wenger and Fowler 2000).
- Riparian buffers less than 35 feet in width cannot sustain long term protection of aquatic resources and a minimum buffer width of 35 feet to 100 feet is recommended under most circumstances (USDA 1998).
- Recommends a minimum width of at least 75 feet (two-zone approach) (Montgomery County, PA). Perennial streams and intermittent streams with a drainage area  $\geq$  75 acres (stricter requirements for the 25 feet closest to the stream). Intermittent streams with drainage areas  $<$  75 acres are protected only in the 25-foot zone.

**BUFFER WIDTH**

# Research (cont.)

- Area available for buffers is more limited after urban development has taken place because much of the area has already been established for another use (e.g. lawns, buildings, accessory uses) or the land has been subdivided without accommodating space for riparian buffers (Schueler 2000).
- The following four criteria should be considered when determining the appropriate buffer width (USDA 2003, Chesapeake Bay Program 1996):
  - Desired functions of the riparian buffer.
  - Value of the resource being protected.
  - Physical characteristics of the riparian area.
  - Intensity of adjacent land uses.

# Desired Functions



Minimum Recommended Buffer Widths for Different Functions - USDA Forest Service

**BUFFER WIDTH**

# Value of the Resource Being Protected

- Value of the resource being protected may be a subjective judgment, certain functions may be considered of higher value than others.
- More important when evaluating watershed restoration projects rather than protection strategies (Chesapeake Bay Program 1996).
- May not be a major decision factor when establishing minimum buffer widths on a county-wide basis.

# Physical Characteristics of Riparian Areas

- If variable buffer widths are proposed, certain physical characteristics of the riparian area could be used to establish the appropriate buffer width (Chesapeake Bay Program 1996)
  - Slope
  - Soil type
  - Stream order
  - Floodplains
  - Wetlands
  - Stream banks
  - Vegetation type

**BUFFER WIDTH**

# Intensity of Adjacent Land Use

- As the intensity of development increases, the riparian buffer should be wider to address these negative effects (Chesapeake Bay Program 1996).
- Buffer widths in urban areas are often increased to accommodate future changes in stream morphology and to accommodate increased runoff (USDA 1998).

# Fixed Width Versus Variable Width

- Using a variable-width approach to establishing buffer widths (Chesapeake Bay Program 1996).
  - Allows the evaluation of site-specific conditions in order to optimize the desired buffer functions.
  - Requires a site evaluation before the required width could be established
  - More difficult to monitor and administer
  - Less easily understood than a fixed-width approach
- Current RPA buffers - fixed minimum width of 100 feet, (measured from the stream bank on each side), but will be wider if there are contiguous wetlands or major floodplains along the stream.

# County Sample Study Extrapolations

<b>Buffer Width</b>	<b>Approx. number of lots</b>	<b>Approx. number of buildings</b>
35 feet	22,200	2,900
50 feet	25,500	5,000
100 feet	36,900	13,700

**BUFFER WIDTH**

# Stakeholder Feedback (cont.)

- A lot of the stakeholders recommended a variable width approach (28.5% of the dots versus 7.1% for the fixed approach).
- Opposing points of view
  - Consistent with current RPA practices
  - More flexibility in restrictions than current RPA practices

# Stakeholder Feedback (cont.)

- For the variable width, consider the following:
  - Existing conditions (trees, slope, wetlands, topography)
  - Density, use
  - Drainage area
  - Practicality
  - Amount of stormwater runoff
- For a fixed width approach, several suggestions were offered
  - 100-foot width on intermittent and ephemeral streams.
  - 100-foot width, but allow flexibility for existing structures (compensate with financial and creative solutions).
  - 50-foot width for ephemeral and 100-foot width for intermittent.

**BUFFER WIDTH**

# Other Counties in Virginia

- Albemarle County Water Protection Overlay District calls for a 100-foot wide buffer (includes intermittent streams), 200-foot if adjacent to public water supply impoundment.
- Henrico County requires a 50-foot wide buffer in Stream Protection Areas (Drainage areas  $\geq$  100 acres).
- Arlington County has 100-foot wide buffers, but includes slopes 25% or greater for streams depicted on Storm Sewer Map.

**BUFFER WIDTH**

# Other Counties in Virginia

- City of Alexandria has 100-foot buffers for perennial streams and 50-foot buffers for intermittent streams.
- Stafford County is proposing a 100-foot wide buffer in the overlay district (includes intermittent streams, but must contain critical slopes and highly erodible soils).

# Options Developed by Staff

- Fixed buffer width no less than 35 feet and no more than 50 feet.
- Two fixed buffer widths (in the range of 35 feet to 50 feet) based on predefined drainage areas (narrower width for smaller drainage area).
- Variable width based on site conditions (difficult to administer, not in line with current RPA practice).

# Workgroup Recommendation

**BUFFER WIDTH**

# **PERMITTED USES**

# Permitted Uses

- What should be allowed in the buffer area (exemptions, exceptions, allowed uses)?

# Research

- Allow normal repairs, restoration, and renovation on existing structures in the buffer corridor, but expansion of buildings or impervious areas should be prohibited (Wenger and Fowler 2000).
- May accommodate the following uses without a substantial loss of effectiveness, provided that the impacts of such uses are mitigated (Firehock 2002) :
  - Limited harvest of trees, berries and other non-timber forest products.
  - Clearing of dead trees and non-indigenous plant species.
  - Placement of essential utilities.
  - Certain recreational uses such as trails.

# Stakeholder Feedback

- Allow facilities and practices that would serve a purpose similar to riparian buffers in lieu of riparian buffers (LID, rain gardens, natural landscaping, LEED certification, reforestation on another part of the site)

# Stakeholder Feedback (cont.)

- Stormwater management
- Environmental attributes
- Accessory uses
- Recreational uses
- Stricter than RPA requirements
- Same as RPA requirements
- Environmental equivalents
- More lenient than RPA requirements

# Stakeholder Feedback (cont.)

## Factors for Consideration

- If reforested, allow a period of time for the vegetation to establish before allowing the use.
- Cumulative impacts.
- Will the use interfere with the intent of the buffer?
- Prohibit if use would materially change topography in the buffer.
- Discourage removal of dead trees unless they pose a hazard.
- Prohibit use of pesticides, herbicides, and fertilizers in new buffer areas and RPAs.
- Consider size of impact.

# Other Counties in Virginia

- Henrico County allows the following uses in the Stream Protection Areas (SPAs):
  - water dependent uses
  - redevelopment activities
  - roads and driveways
  - utility lines
  - passive recreation
  - removal of vegetation for sight distance
  - paths
  - woodlot management

# Other Counties in Virginia

- In addition, Henrico requirements include the following:
  - BMP's can encroach 15 feet into area (with constraints).
  - Exemptions (minor land disturbance  $\leq 2,500$  sq. ft. is exempt, agriculture, silviculture, mining, utility maintenance and connections)
  - Waivers for loss of buildable area under certain conditions (equivalent area elsewhere on lot), but SPA cannot be less than 35 feet.

# Other Counties in Virginia

- Albemarle County exempts utilities and silviculture activities from the Water Protection Overlay District requirements.
- Stafford County is proposing a Potomac River Resource Protection Overlay District that essentially would exempt single-family detached on existing lots (new houses and accessory structures or additions).

# Options Developed by Staff

- Permitted Uses.
  - Minor additions (similar to RPA requirements).
  - Loss of buildable area (similar to RPA requirements)
  - Other exceptions, exemptions and allowed uses provided in the RPA requirements.
  - Better water quality benefits.
  - Tree preservation.
  - Trails and paths.
  - Accessory uses to residential structures that do not require a building permit (small sheds, fences).
- No permitted uses.

# Workgroup Recommendations

**PRESERVATION  
AND  
REFORESTATION**

# Preservation/Reforestation

- Two components
  - Preservation of existing forested buffer areas.
  - Reforestation if existing buffer is not forested.

# Research

- Forested buffers provide an effective performance of all functions, including protection of aquatic habitat. Grass-covered riparian buffers can only perform several functions, such as trapping sediment and contaminants. (Wenger and Fowler 2000).
- Trees are the single most important element of the riparian corridor for removing nutrients from the soil, stabilizing the soil, modifying water temperature, and providing food for aquatic organisms (Montgomery County, PA).

# Stakeholder Feedback

- Reforestation should be done with native, endemic, appropriate and diverse species with high wildlife value.
- Preservation should be primary (manage existing forested buffers and remove invasive species).
- Do not require reforestation.
- Consider value of seeking conservation easements in buffer areas.
- Consider value of removing existing vegetation to plant trees.
- Use site specific factors to determine if reforestation is of value.

# Other Counties in Virginia

- Stafford County is not proposing to require reforestation, but will require that a plat be recorded showing the buffer area.
- Albemarle County requires that a forested buffer be retained where present in the Water Protection Overlay District, or established where they do not exist.
- Henrico County requires that properties included in Stream Protection Areas reforest the buffer to address water quality requirements if the impervious area is greater than 16%. A maintenance agreement is recorded providing for continued maintenance of the buffer.

# Options Developed by Staff

- Do not require reforestation (less impact to property owners, difficulties in enforcing).
- Require reforestation if land disturbance is greater than 2,500 square feet (would include plans with additions or accessories to single family homes that encroach into the buffer area, as well as new homes), uses that require a site plan, or a subdivision plan.
- Require reforestation if it is a new home construction (establishing a new use), uses that require a site plan, or a subdivision plan.
- Require reforestation for uses that require a site plan or a subdivision plan.

# Options Developed by Staff (cont.)

- If reforestation is required
  - Should allow for water quality credits.
  - Should require recordation of easements and maintenance agreements.

# Workgroup Recommendation

**PRESERVATION AND REFORESTATION**

# Review of Considerations

- Majority of ephemeral and intermittent streams are located in already developed areas – community common area (already somewhat protected) or homeowner's yards (impacting use of property).
- Additional costs associated with mapping, reviewing and enforcing the regulations.
- Goal of regulations.
- Notification to affected property owners.
- Balancing the impact on property owners and the costs and complexity of regulations with the benefits to be gained.
- Impacts of enforcement.
- Community acceptance of property restrictions.