



Riparian Buffer Protection Standards

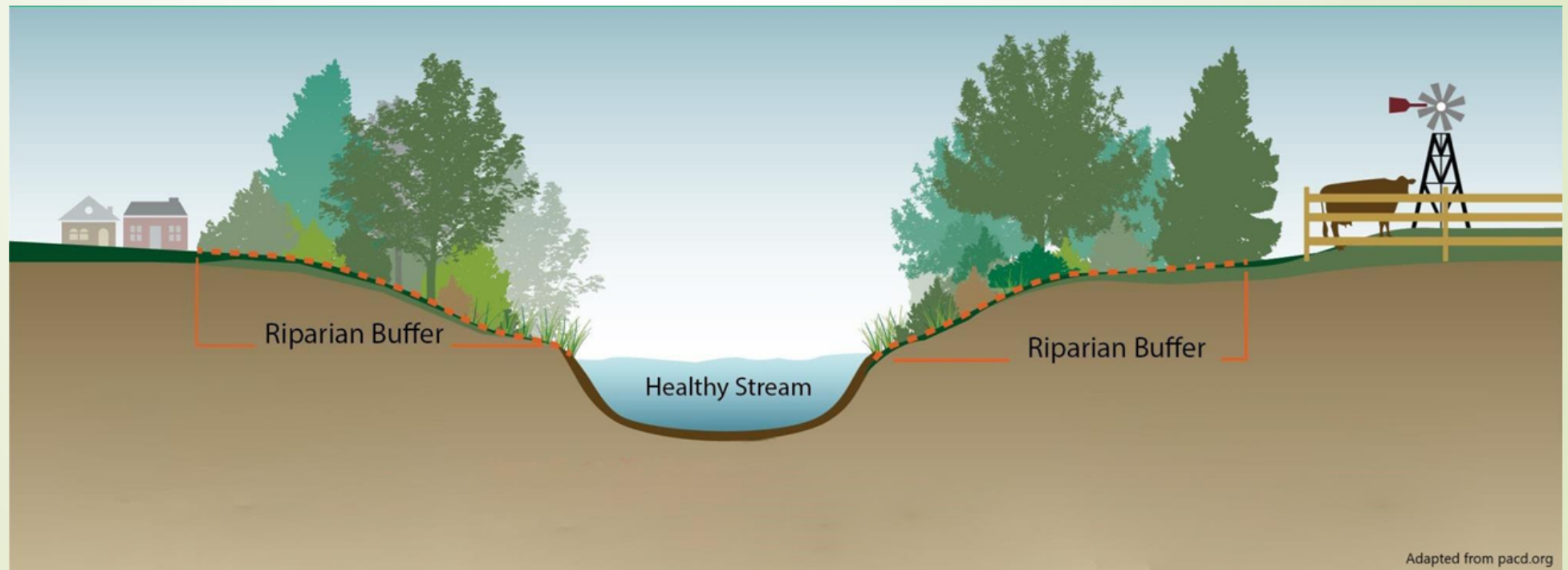
Board of Supervisors Public Hearing 2026-06-17

Stream Health Initiative

- Community Outreach
 - Stakeholder Work Groups
 - Set vision & goals
 - Developed final recommendations with staff
 - Community Learning Series (8 webinars/videos)
 - Online community surveys
- Result of Phase II: 14 community-developed recommendations for stream-health protection

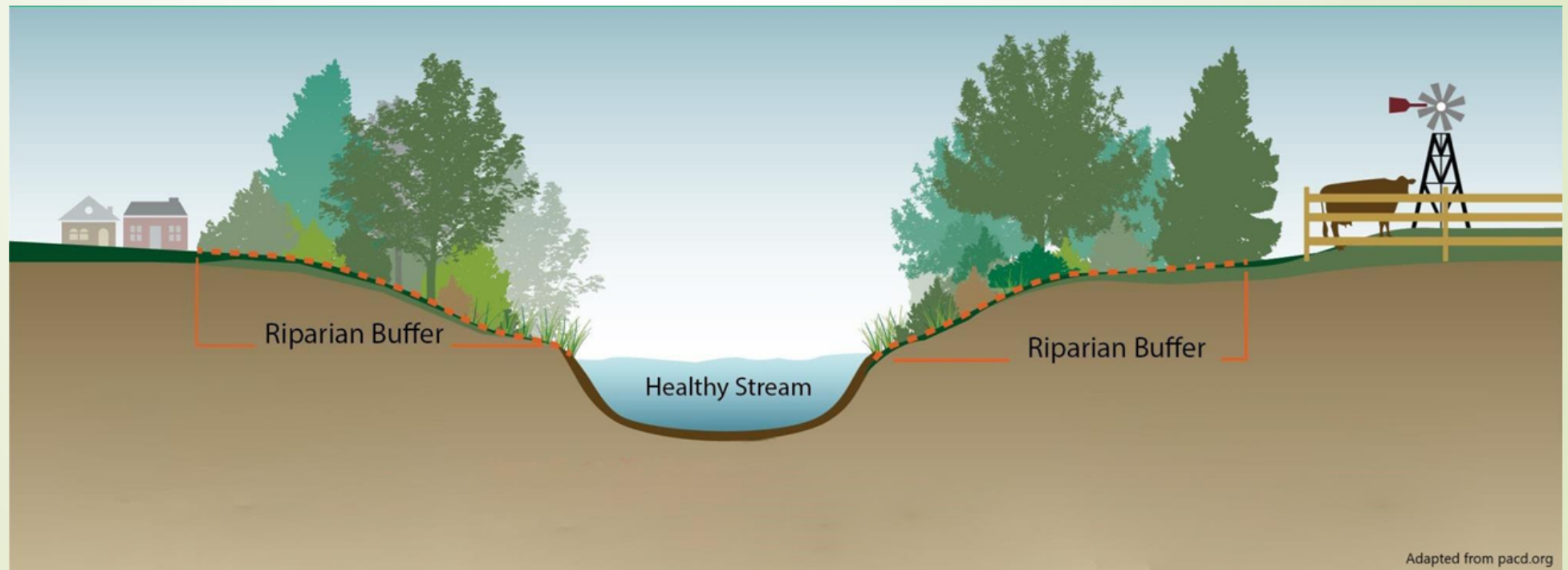
Stream Health Initiative

- Recommendation #1: Better protection of riparian buffers in Zoning Ordinance
- A riparian buffer is an area of vegetation adjacent to a stream, wetland, reservoir, or pond.



Riparian Buffer Ordinance Amendment

- BOS adopted Resolution of Intent to amend the Zoning Ordinance on March 16, 2022
- BOS Work Session: August 20, 2025
- PC Public Hearing: February 10, 2026



Scope of Riparian Buffer Project

- Move riparian buffer regulations from Water Protection Ordinance (WPO) to Zoning Ordinance, in order to:
 - Protect water quality, stream health, and wildlife habitat, and boost climate resiliency;
 - Address stream impairments by filtering nonpoint source pollution and reducing erosion and sedimentation; and
 - Provide clarity on uses that are permitted within stream buffers
- Implement standards that protect buffer vegetation County-wide
- Apply riparian buffer requirements whether or not a site has a regulated land disturbance under review
- Place design and plan-preparation standards into the Design Standards Manual
- Keep current exemptions for agriculture and forestry
- Update County ordinance language to be consistent with the Chesapeake Bay Preservation Act (CBPA) and the Virginia Administrative Code Management Regulations of the CBPA.

Where are the buffers?

- Current WPO buffer locations and proposed RBPS buffer locations are the same.
- The riparian buffers extend from any applicable waterbody or wetlands to the limits shown in draft section 4.23.4 – shown on next slide.

Where are the buffers?

Comprehensive Plan	Location	Buffer Width
Development Area	Not within water supply watershed	100 feet wide on each side of any perennial stream and contiguous wetlands
	Within water supply watershed	The wider of either i) 100 feet on each side of any perennial or intermittent stream and contiguous wetlands, or ii) the limits of the Flood Hazard Overlay District. (Structures permitted in outer 50 feet on intermittent streams, with mitigation plan).
Rural Area	Public water supply impoundments	200 feet from the landward edge of the Flood Hazard Overlay District
	Elsewhere	The wider of either i) 100 feet on each side of any perennial or intermittent stream and contiguous nontidal wetlands or ii) the limits of the Flood Hazard Overlay District

Current Buffer Regulations

- Stream buffer regulations in Water Protection Ordinance
- Land disturbances of 10,000 square feet or more require mitigation of stream buffer impacts
- No vegetation protection for land disturbances under 10,000 square feet, or outside of regulated land disturbances
- Changes in land use are not regulated
- New structures requiring building permits are not permitted in buffers

Proposed Riparian Buffer Protection Standards

New section of Zoning Ordinance

- **4.23.1** – Intent
- **4.23.2** – Applicability
- **4.23.3** – Authority, Powers, and Duties of Riparian Buffer Administrator (RBA)
- **4.23.4** – Boundaries - General
- **4.23.5** – Site-specific Determinations of Riparian Buffers
- **4.23.6** – General Performance Standards
- **4.23.7** – Permitted Structures, Improvements, and Activities
- **4.23.8** – Structures, Improvements, and Activities Subject to Approval by the Riparian Buffer Administrator [with mitigation plan]
- **4.23.9** – Mitigation Plan: Form, Standards, Content, Surety
- **4.23.10** – Special exceptions

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- 4.23.10 – Special exceptions

Vegetation – Performance Standards

Now - WPO

- For permitted development projects with at least 10,000 square feet of disturbance, buffer vegetation can be removed/changed with a mitigation plan
- Elsewhere, any buffer vegetation can be removed

Vegetation – Performance Standards

Now - WPO

- For permitted development projects with at least 10,000 square feet of disturbance, buffer vegetation can be removed/changed with a mitigation plan
- Elsewhere, any buffer vegetation can be removed

Proposed (4.23.6)

- Except for permitted uses, “native vegetation within the riparian buffer must not be disturbed or removed” in all buffers, whether or not development is under review
- Applies to all disturbances, not just those above 10,000 square feet
- Buffers “must be maintained in as natural a condition as possible.”
- Guidance provided in Design Standards Manual

Vegetation – Performance Standards

Now - WPO

- For permitted development projects with at least 10,000 square feet of disturbance, buffer vegetation can be removed/changed with a mitigation plan
- Elsewhere, any buffer vegetation can be removed

Proposed (4.23.6)

- Except for permitted uses, “native vegetation within the riparian

RBPS would permit two categories of uses:

- By right
- By administrator approval, with a mitigation plan

RBPS: Permitted Uses

➤ By Right (4.23.7):

- Agriculture & forestry (forestry would still require BMPs & streamside management zones in accord with State law)
- Utilities
- Water-dependent facilities
- Pervious passive recreation facilities, plus signs/kiosks
- Historic preservation & archaeology
- Buffer restoration & replacement
- Native vegetation planting
- Minor installations (posts, poles, etc.)
- Limited vegetation removal (hazards, noxious/invasive species, etc.)

RBPS: Permitted Uses

- **By RBA approval, with mitigation plan (4.23.8):**
 - In the outer 50 feet:
 - Temporary E&S facilities
 - Structures necessary for reasonable use of a lot, or DA structures on intermittent streams in water supply protection areas
 - Environmental restoration projects
 - Stream crossings for roads, streets, and driveways
 - Building sites & water/sewer facilities where buffer restrictions would otherwise prevent reasonable use
 - Flood management facilities (with standards)
 - Stormwater outfalls
 - Impervious recreation facilities
 - Public Uses

Mitigation Plans (4.23.9)

- Restoration of disturbed area/vegetation at 2:1 ratio (area)
- Plantings must include only native species
- Buffer vegetation must be planted, established and maintained as described in the DSM.
- RBA can require bonds until plants are established

Special Exceptions (4.23.10)

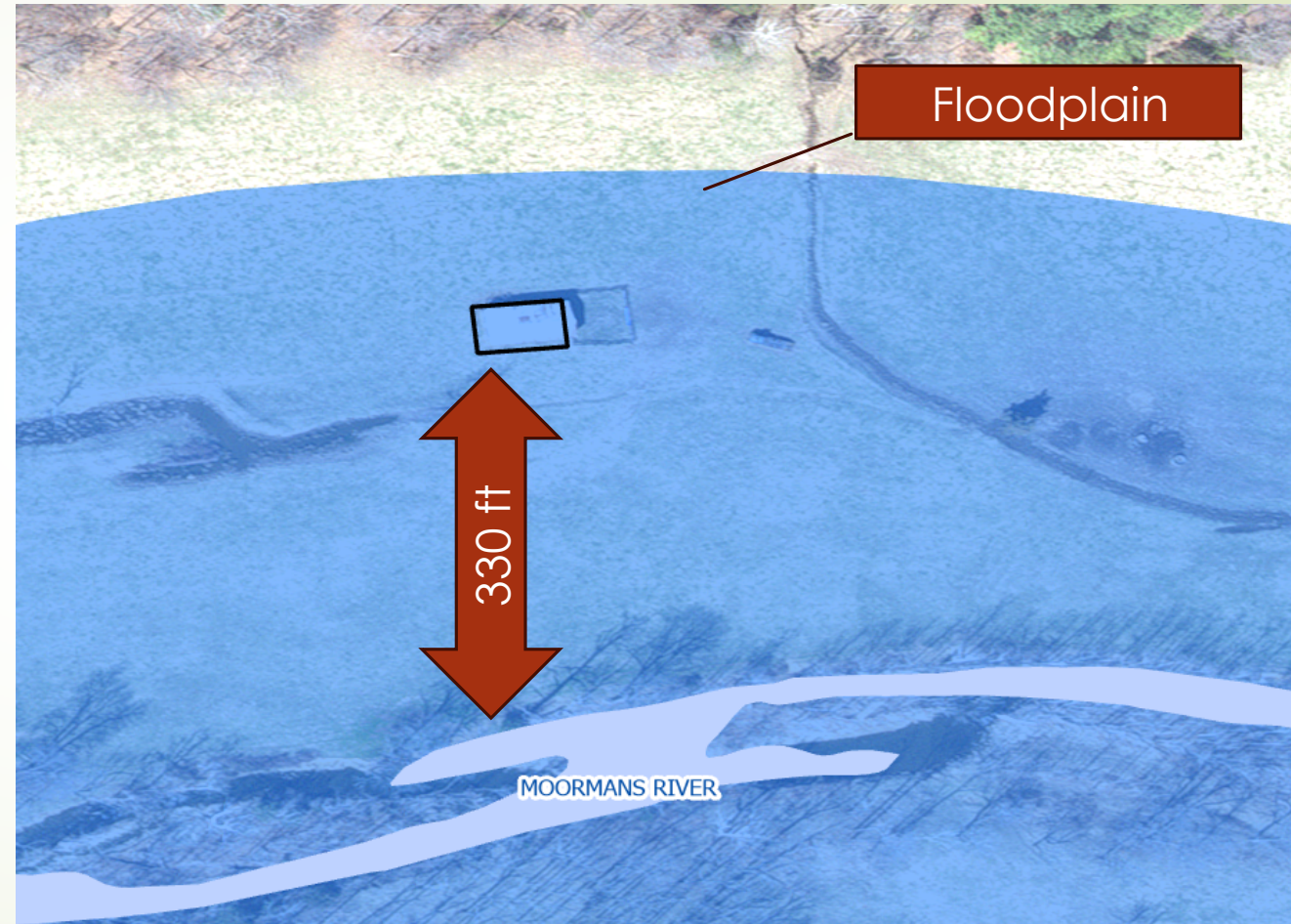
- Special exceptions permitted only for:
 - Vegetation management standards (4.23.6)
 - Uses permitted by right (4.23.7)
 - Uses permitted with mitigation plan (4.23.8)
- Abutting landowners must be notified
- Riparian Buffer Administrator can require a water quality impact assessment
- Section establishes several factors for Board to consider
- Conditions may be applied to approvals and performance bonds may be required.

Changes Since Planning Commission Hearing

- Removed requirement for RBA approval of all invasive-species removal
- Added more detail on standards for site-specific surveys in Design Standards Manual
- If adopted, effective date September 1, 2026

Changes Since Planning Commission Hearing

- Agricultural Structures
 - Draft prohibits new agricultural structures in buffers
 - In the Rural Area, buffers extend to the edge of the floodplain – not just the first 100 feet
 - Flood Hazard zoning regulations permit ag structures in the floodway fringe, but draft RBPS language would not.



Changes Since Planning Commission Hearing

- Agricultural Structures
 - Proposed updated language:

Sec. 4.23.7 – Permitted Structures, Improvements, and Activities

The following are permitted within riparian buffers and must follow the performance standards in section 4.23.6 (C), and obtain all required Federal, State and County permits:

A. Agriculture. Bona fide agricultural activities, excluding:

1. Roads not exempt under section 17-300 (D); and
2. New agricultural structures located within 100 feet of the top bank of any perennial or intermittent stream or its contiguous wetland.

Next Steps

- After adoption:
 - CDD staff will work with CAPE to increase public awareness of the new regulations
 - Outreach will include partner organizations
 - Buffer-related changes to the Design Standards Manual will be posted for public review and comment (30 days)



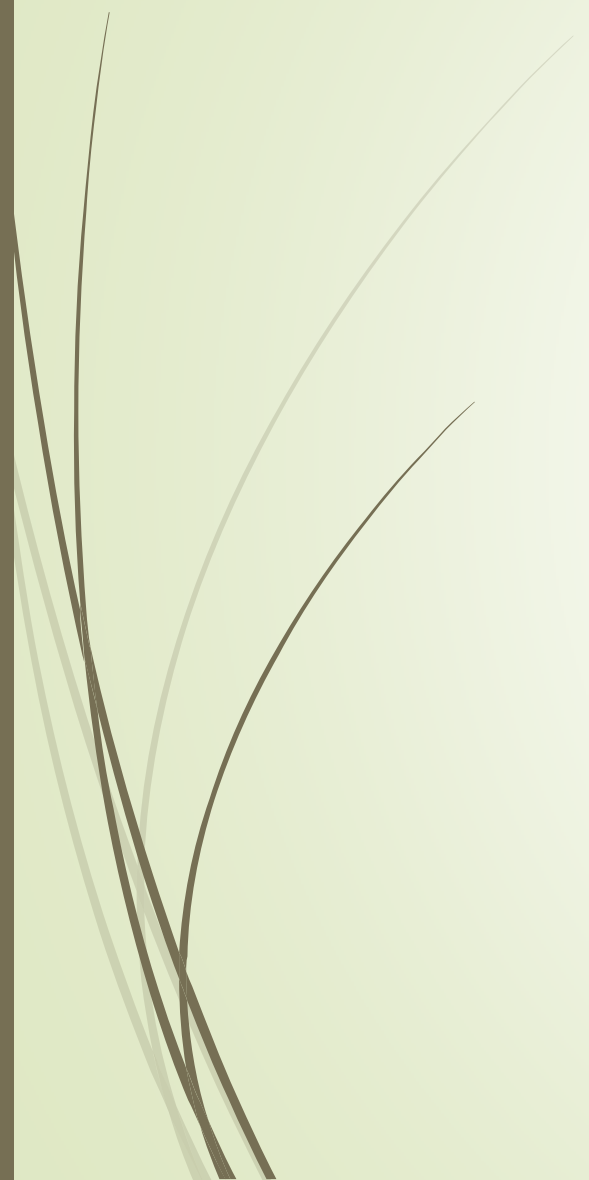
Questions?



Public Hearing

Recommended Action

- Should the Board of Supervisors support adoption of these ordinance amendments:
 - **I move to adopt the ordinances included as Attachments D, E, F, and G, with the change to draft section 4.23.7(A) recommended by staff.**





4.23.10 Factors to Consider:

1. The requested exception to the criteria is the minimum necessary to afford relief;
2. Granting the exception will not confer upon the applicant any special privileges denied by this section to other property owners similarly situated in the vicinity;
3. The exception is in harmony with the purpose and intent of this section and is not of substantial detriment to water quality;
4. The exception request is not based upon conditions or circumstances that are self-created or self-imposed;
5. Reasonable and appropriate conditions are imposed, as warranted, that will prevent the exception request from causing a degradation of water quality; and
6. Other findings, as appropriate and required by the Board are met.

Sec. 17-600 - Extent of stream buffers; retention and establishment.



Except as provided in [section 17-602](#), each ESM plan and each land-disturbance permit must provide for stream buffers for the purposes of retarding runoff, preventing erosion, filtering nonpoint source pollution from runoff, moderating stream temperature, and providing for the ecological integrity of stream corridors and networks, as provided herein:

- A. *Development within a development area.* If the development is located within a development area, stream buffers must be retained if present and established where they do not exist on any lands subject to this chapter containing perennial streams, contiguous nontidal wetlands, or both. The stream buffer must be no less than 100 feet wide on each side of any perennial stream and contiguous nontidal wetlands, measured horizontally from the edge of the contiguous nontidal wetlands, or the top of the stream bank if no wetlands exist.
- B. *Development within a water supply protection area or other rural land.* If the development is located within a water supply protection area or other rural land, stream buffers must be retained if present and established where they do not exist on any lands subject to this chapter containing perennial or intermittent streams, contiguous nontidal wetlands, and floodplains. The stream buffer must extend to whichever of the following is wider: (i) 100 feet on each side of any perennial or intermittent stream and contiguous nontidal wetlands, measured horizontally from the edge of the contiguous nontidal wetlands, or the top of the stream bank if no wetlands exist; or (ii) the limits of the floodplain. The stream buffer must be no less than 200 horizontal feet wide from the floodplain of any public water supply impoundment.

Sec. 17-300 - Land-disturbing activities and site conditions subject to the VESMP.



The following land-disturbing activities and site conditions are subject to the VESMP, requiring the owner to comply with all applicable requirements of the VESMP in this Chapter and under state law:

- A. *Land disturbance of 10,000 square feet or more.* Any land disturbance often 10,000 square feet or more, including the harvesting of forest crops, unless the activity is exempt under [section 17-301](#).
- B. *Land disturbance of less than 10,000 square feet; common plan of development or sale.* Any land disturbance of less than 10,000 square feet if the disturbance is part of a common plan of development or sale whose total land disturbance will exceed 10,000 square feet, unless the activity is exempt under [section 17-301](#).
- C. *Erosion impact area.* The administrator determines that a site is an erosion impact area under [section 17-304](#), regardless of whether the activity resulting in the condition is otherwise exempt under [section 17-301](#).
- D. *Agricultural road included within a plan of development.* The administrator determines that any previously constructed agricultural road, exempt at the time of its construction under [section 17-301](#), is no longer exempt because the owner submitted an initial site plan, preliminary plat, any other subdivision plat, or special use permit for a use or activity not directly related to agriculture, for the site on which the agricultural road is located, and: (i) the initial site plan, subdivision plat, or special use permit application was submitted within 24 months after construction of the agricultural road began; and (ii) the administrator determines that the dimensions and alignment of the agricultural road substantially correspond to the dimensions and alignment of a road proposed on the plan, plat, or any document submitted as part of the special use permit application.

Zoning Ordinance section 33.6(B) establishes factors to be reasonably considered by the Planning Commission and Board of Supervisors in the review of ZTAs. Each factor is reviewed below:

- (i) the existing use and character of property
The proposed RBPS ordinance would not change the use of individual properties, or the overall pattern of land uses in the County. The ordinance is focused on the protection of existing native vegetation within portions of properties identified as buffers.
- (ii) the comprehensive plan
Objective 1 of the 2015 Comprehensive Plan states that the County should “[e]nsure clean and abundant water resources for public health, business, healthy ecosystems, and personal enjoyment by preventing shortages and contamination.” The proposed RBPS ordinance would help to meet this objective by applying water-quality buffer protection to all identified buffers in the County, rather than only those affected by regulated land-disturbance activities of 10,000 square feet or more.
- (iii) the suitability of property for various uses
The proposed RBPS ordinance would not change the overall uses possible on a property under the ZO, but would only establish performance standards for the portions of properties within the designated buffers.
- (iv) the trends of growth or change
As the County’s water needs increase with increasing population, and as climate change leads to more extreme rain events, the protection of riparian-buffer vegetation will be important to public water supplies and to stream-health values identified as important in the Comprehensive Plan.
- (v) the current and future requirements of the community as to land for various purposes as determined by population and economic studies and other studies
The RBPS standards would add water-quality protections called for in the Comprehensive Plan and the SHI, while allowing current and future zoning of individual properties to determine actual uses.

- (vi) the transportation requirements of the community
The proposed ordinance accommodates transportation requirements by allowing for public roads and other transportation improvements by-right (4.23.7), and for stream crossings for private roads and driveways by RBA approval with a mitigation plan (4.23.8).
- (vii) the requirements for airports, housing, schools, parks, playgrounds, recreation areas, and other public services
Public uses are permitted either within the categories of permitted by-right uses (4.23.7), or with mitigation plans (4.23.8) if not specifically listed in 4.23.7.
- (viii) the conservation of natural resources
The proposed RBPS ordinance directly addresses the conservation of natural resources by increasing water-quality buffer protections on streams. These protections are intended to protect drinking-water quality, in-stream habitat, and

Planning Commission
January 27, 2026

the extent of native vegetation along streams, which also provides wildlife habitat.

- (ix) the preservation of flood plains
In the Rural Areas, both the existing WPO buffers and the proposed RBPS buffer requirements extend to the limit of the 100-year floodplain. Thus, the vegetation-management requirements (proposed section 4.23.6) and mitigation requirements for permitted uses (4.23.8, 4.23.9) would increase protections for floodplains.

- (x) the protection of life and property from impounding structure failures
Riparian buffers do not directly affect impounding structures. However, limiting structures in buffers and floodplains can help to reduce the risks from impounding-structure failures.
- (xi) the preservation of agricultural and forestal land
Protection of riparian buffers does not increase development impacts on farms or forestry land. Agriculture and forestry would be permitted within the riparian buffers.
- (xii) the conservation of properties and their values
The RBPS would not create new impacts on properties adjacent to individual properties that include buffers. Protection of buffer vegetation can reduce impacts of floods on downstream properties.
- (xiii) the encouragement of the most appropriate use of land throughout the County
The proposed RBPS ordinance would not change overall land-use designations in the Rural Area or in the Development Areas. Land-use patterns would remain as designated in the Comprehensive Plan, while the portions of properties within the buffer areas would be regulated to protect water quality.
- (xiv) equity
This proposed ordinance reflects the recommendations of the SHI, which included extensive stakeholder involvement and focused on community-wide water-quality protection.

This ordinance has also been reviewed by the three (3) criteria previously established by the Board for amendments:

Administration/Review Process: Proposed sections 4.23.7 and 4.23.8 describe the review process for projects within the buffers in detail. The increased clarity of the regulations will result in more consistent administration and efficient review.

Housing Affordability: The proposed ordinance does not impact housing affordability, as the extent of the buffers is not increased from those currently regulated by the WPO.

Implications to Staffing/Staffing Costs: If the draft ordinance is adopted, existing Zoning and Engineering staff will be used to initially implement the new ordinance. Then, based upon work levels observed during the first year, staff will evaluate whether additional personal or resources are needed.

		Proposed Landcover Within Riparian Buffer							
		Conservation Management			Forestry		Agriculture		Other
		Hardwood or mixed forest	Native grassland, Piedmont prairie	Wetland	Hardwood or mixed forest	Pine	Pasture	Crop	Landscaping
		Existing Landcover Within Riparian Buffer							
Conservation Management	Hardwood or Mixed Forest	P*	N	P	P*	P*	P	P	N
	Management: 1, 3								
	Native grassland, Piedmont prairie	P	P	P	P*	P*	P	P	N
	Management: 2								
Forestry	Hardwood or mixed forest	P*	P	P	P*	P*	P	P	N
	Management: 3								
	Pine	P	P	P	P*	P*	P	P	N
	Management: 3								
Agriculture	Pasture	P	P	P	P*	P*	P	P	N
	Crop	P	P	P	P*	P*	P	P	N
Other	Landscaping (lawn, grass, mowed lawn with trees/shrubs, mowed or bush-hogged field, etc.)	P	P	P*	P*	P	P	P	P

		Proposed Landcover Within Riparian Buffer							
		Conservation Management			Forestry		Agriculture		Other
		Hardwood or mixed forest	Native grassland, Piedmont	Wetland	Hardwood or mixed forest	Pine	Pasture	Crop	Landscaping

2. Permitted Landcover Change Matrix

Potential changes to landcover within the Riparian Buffer are permitted as follows.

P: Permitted

P*: Permitted in compliance with the standards in section 4.23.7(B). Removal of existing forested buffer vegetation is not permitted for activities such as landscaping or clearing for views. For a list of permitted uses in the riparian buffers, refer to Section 4.23.7.

N: Not permitted

Permitted management of existing vegetation is listed for each vegetation type as follows:

1	Maintenance of native riparian buffer that includes canopy, understory, shrub, and herbaceous layers; invasive-species removal/control.
2	Maintenance of native vegetation; invasive species removal/control
3	Uses permitted in compliance with Sec. 4.23.7 (B); invasive species removal/control

Other	wooded area with trees/shrubs, mowed or bush-hogged field, etc.)								
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Stream Health Initiative Phase II Proposals

		EXISTING STAFF TIME	ADDITIONAL STAFF TIME (FTEs)	TIMEFRAME (YEARS)	COST	ALIGNMENT
1	Stream Buffer Overlay District	 				                
2	Strengthen Restoration & Mitigation Requirements			 	\$	                
3	Environmental Restoration ZTA					                
4	Sustainable Onsite Sewage Treatment Systems	  	  	    	 \$\$\$\$	               
5	Development Phase Carryover Items		 			                
6	Land Conservation for Water Quality	 				                

Vision and Goals for Stream Health in our Community

VISION: *Albemarle County will have clean, healthy stream systems that allow for safe utilization and support a diverse and resilient natural environment and a thriving rural economy. The quality of the water and riparian areas will provide important benefits such as drinking water protection, climate resilience, protection of biodiversity, erosion and sediment control, flood mitigation, and scenic beauty; and will maintain healthy aquatic and terrestrial habitat, support agriculture and other rural industries, and safely allow for recreational uses such as swimming, boating, and fishing.*

GOAL 1: Maintain and improve local conditions to ensure that our streams and rivers are meeting or exceeding the state water quality standards.

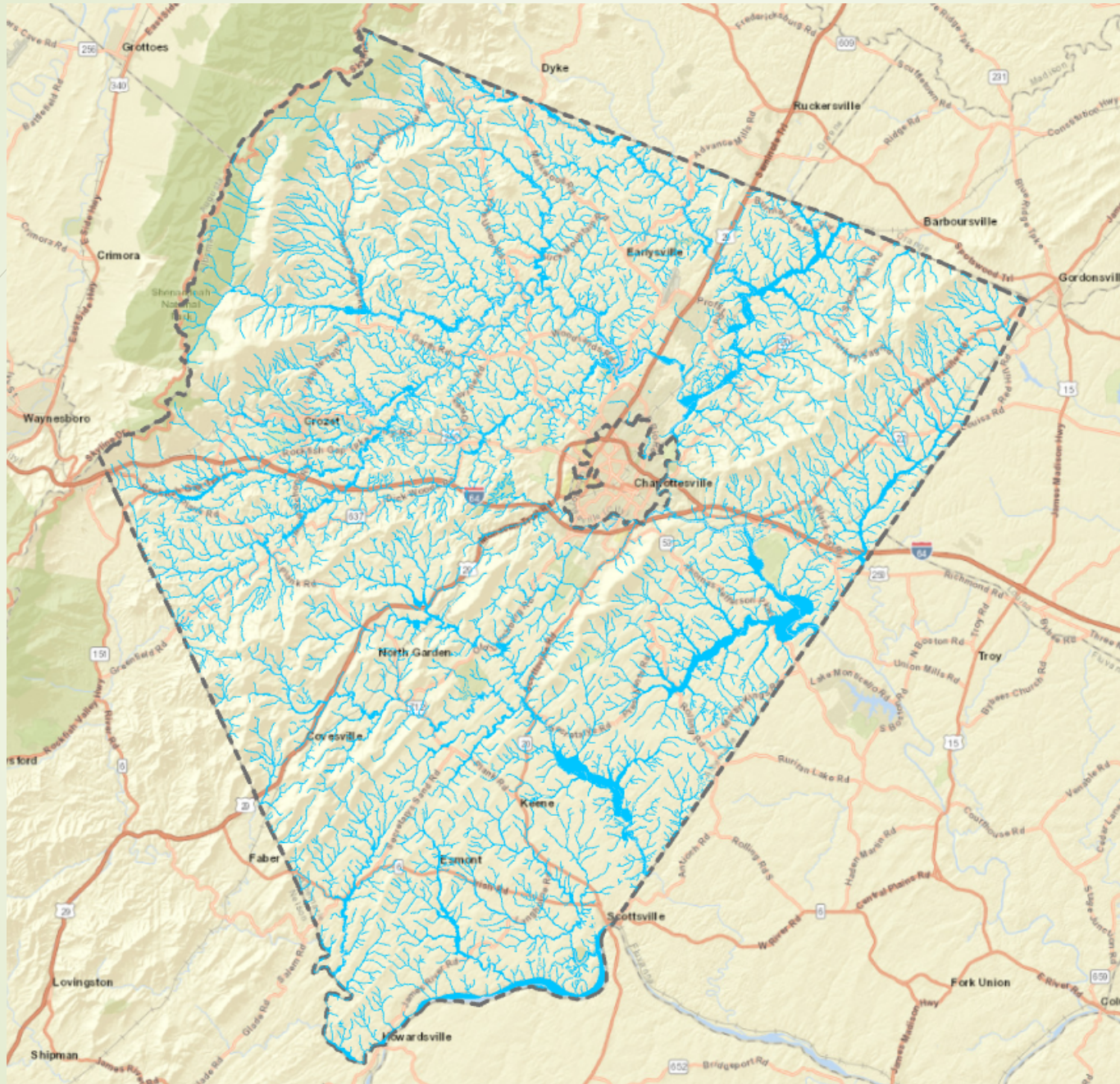
GOAL 2: Increase our understanding of the status and needs of our waterways through monitoring and assessment within our watersheds.

GOAL 3: Strengthen programs, policies, and enforcement mechanisms to have clear, effective, and enforceable measures.

GOAL 4: Increase and promote incentives and voluntary measures that protect stream health.

GOAL 5: Protect and restore riparian systems to maintain and enhance the benefits they provide to people and the natural environment.

GOAL 6: Foster a well-informed and educated public that understands the importance of stream health, local policies, best management practices, and individual actions that can affect stream health.



Total area of WPO Buffers

- approx. 68,500 acres
- 14.6% of the County

DA: 1,668 acres (7.0% of DA)

RA: 66,811 acres (15.2 % of RA)

39

Moisture Requirements
L = Low moisture
M = Moderate moisture
H = High moisture

- + May be aggressive in a garden setting
- + Due to the rarity and sensitivity of habitat in Virginia, these species are recommended for horticultural use only. Planting these species in natural areas could be detrimental to the survival of native populations.

[illegible][illegible]

Wetland forest buffers are areas of trees, shrubs and other vegetation along and next to stream channels and other waterways. The removal of these buffers has contributed to ecological problems in our waterways, and the Chesapeake Bay. Problems include sedimentation, nutrient and toxic chemical pollution, and reduction of fish habitat.

Wetland forest buffers are natural communities such as bottomland hardwood forest, coastal scrub and upland oak-hickory-pine forests. They support a variety of plants and animals, particularly plants that are adapted to periodic flooding or saturated soils. Because of the presence of moving water, more materials are deposited in, and pass through, wetland forests than any other wetland ecosystem.

Vegetation, leaf litter and porous soil slow the flow of water. This helps control the rate and volume of water in streams and rivers, greatly influencing flood levels.

Leaf litter filters sediment from upland runoff, as well as phosphorus, nitrogen and other nutrients that may be bonded to sediment particles. Leaf litter intercepts and stores these polluting nutrients before they can cloud waterways.

Leaf litter captures and converts pesticides to nontoxic compounds by various chemical and microbial activities within the forest buffer. This protects fish and amphibians, which are threatened by pesticide pollution.

[illegible][illegible][illegible]

land forests adjacent to waterways provide many of the same ecosystem values. These ecological functions combine to make riparian buffers critical to ecological and human health. Recognizing this, the Chesapeake Bay Program has set a goal to replant riparian areas along 70 percent of stream miles in the bay watershed.

Forest buffers consist of four vegetation zones. Zone 1, the wet vegetation zone, is permanently to semipermanently flooded and dominated by grasses, sedges, rushes and other herbaceous plants. Zone 2, the riverside thicket, may be seasonally to temporarily flooded and is often characterized by emergent aquatic species, shrubs and tree species. Zone 3, the saturated forest, has soils that are poorly drained. Zone 4, the well-drained forest, is also upland forest and has dry soil. Zones 3 and 4 are dominated by trees but also contain shrub and herb layers in the understorey.

[illegible][illegible]

<i>apiculata</i>	crossvine	x	x	x	x	x	x
<i>candens</i>	climbing bittersweet	x	x	x	x	x	x
<i>virginiana</i>	virgin's bower	x	x	x	x	x	x

Small trees							
<i>Alnus</i>	hazel alder	+	+	+	+	+	+
<i>Rubifolia</i>	red chokeberry	+	+	+	+	+	+
<i>Encarpha</i>	black chokeberry	+	+	+	+	+	+

[illegible]

deciduous holly	• • •	• •	• •	• •	• •
winterberry	• • •	• • •	• •	• •	• •
Virginia willow	• • •	• • •	• •	• •	• •
coastal dog-hobble	•	•	•	•	• •

[illegible][illegible]

Species	downy serviceberry	Canada serviceberry	smooth serviceberry
<i>Amelanchier arborea</i>	+	+	+
<i>A. canadensis</i>	+	+	+
<i>A. laevis</i>	+	+	+

Andis	green hawthorn	+	+	+	+	+	+
Ala	red mulberry	+	+	+	+	+	+
Liniana	Eastern hop-hornbeam	+	+	+	+	+	+
Bonia	redbay	+	+	+	+	+	+

black willow	x	x	x	x	x	x	x	x
red maple	x	x	x					
sweet birch	x	x	x	x	x	x	x	x

<i>virginiana</i>	persimmon	x x x	x x x	x x x	x x	x x
<i>americana**</i>	white ash	x x	x x	x x	x x	x x
<i>pennsylvanica**</i>	green ash	x x x	x x x	x x	x x	x x
<i>nigra</i>	black walnut	x x	x x x	x x	x	x x

savanna	vamp poplar		*	*	*	*	*	*
atica	water tupelo	*	*	*	*	*	*	*
atica	black gum	*	*	*	*	*	*	*
m arboreum	sourwood	*	*	*	*	*	*	*
	loblolly pine	-	-	-	-	-	-	-

color	swamp white oak	*	*	*	*	*	*	*	*
arbitolia	swamp laurel oak	*	*	*	*	*	*	*	*
richauxii	swamp chestnut oak	*	*	*	*	*	*	*	*
gra	water oak	*	*	*	*	*	*	*	*

Willow oak	*	*	*	*	*	*	*
litchium				*	*	*	*

Virginia
Piedmont
Region

Rocky falls and rapids on the Potomac, Rappahannock and James rivers mark a transition from the softer sediments of the Coastal Plain to the resistant bedrock underlying the Piedmont. Moving west, the rolling hills of Virginia's Piedmont Plateau steadily climb from the fall line to the foothills of the Blue Ridge Mountains, which form the western boundary of the Piedmont. The hills of the Piedmont become steeper to the west, where monadnocks — remnants of ancient mountains — rise above the farms and forests. The Piedmont is known for moderately fertile but highly eroded clay soils that formed from deeply weathered bedrock. Most of this land was converted to farmland during European settlement. Today, however, mixed pine-oak-hickory forests arising from abandoned farmlands are found throughout the region.



Recommended Uses
W = Wildlife
H = Horticulture & landscaping
C = Conservation & restoration
D = Domestic livestock forage

Minimum Light Requirements
S = Shade
P = Partial sun
F = Full sun

Moisture Requirements
L = Low moisture
M = Moderate moisture
H = High moisture

Some species are marked with the following footnote symbols:

- * May be aggressive in a garden setting
- * Due to the rarity and sensitivity of habitat in Virginia, these species are recommended for horticultural use only. Planting these species in natural areas could be detrimental to the survival of native populations.

** May be subject to emerald ash borer infestation.

[illegible][illegible]

Virginia Riparian Buffer Zones

- Soils store water, and plants in the forest buffer take up that water

Recommended Uses
W = Wildlife

Scientific Name	Common Name	Uses				Region			Light			Moisture			Riparian Zone				
		W	H	C	D	M	P	C	S	P	F	L	M	H	1	2	3	4	
Juncus canadensis	Canada rush	•		•			•	•		•	•		•	•	•	•	•	•	
Juncus effusus	soft rush	•		•			•	•	•		•	•		•	•	•	•	•	
Leersia oryzoides	rice cutgrass	•		•			•	•	•		•	•		•	•	•	•	•	
Panicum virgatum	switch grass	•	•	•			•	•	•		•	•	•	•	•	•	•	•	
Saccharum giganteum	giant plumegrass	•	•	•				•	•		•	•		•	•	•	•	•	
Scirpus cyperinus	woolgrass bulrush	•	•	•			•	•	•		•	•		•	•	•	•	•	
Sparganium americanum	American bur-reed	•		•			•	•	•		•	•				•			
Tripsacum dactyloides	gama grass	•	•	•	•		•	•	•		•	•		•	•	•	•	•	
Typha latifolia	broad-leaved cattail	•		•			•	•	•		•			•	•	•			
Zizania aquatica	wild rice	•	•	•				•			•			•			•		
Vines																			
Bignonia capreolata	crossvine	•	•				•	•	•		•	•		•	•		•	•	•
Celastrus scandens	climbing bittersweet	•	•				•	•	•		•	•	•	•				•	
Clematis virginiana	virgin's bower			•			•	•	•		•	•		•			•	•	•
Parthenocissus quinquefolia	Virginia creeper	•	•	•			•	•	•		•	•		•			•	•	•
Shrubs & Small Trees																			
Alnus serrulata	hazel alder	•	•	•			•	•	•		•	•	•		•		•	•	•
Aronia arbutifolia	red chokeberry		•	•			•	•	•		•	•	•		•		•	•	•
Aronia melanocarpa	black chokeberry			•	•		•	•	•		•	•	•		•		•	•	•
Baccharis halimifolia	high tide bush			•	•			•			•	•	•		•		•	•	•
Callicarpa americana	American beautyberry	•	•					•		•	•		•				•	•	•
Cephalanthus occidentalis	buttonbush			•	•		•	•	•		•	•		•			•	•	•
Clethra alnifolia	sweet pepper-bush	•	•	•				•		•	•		•	•				•	
Cornus amomum	silky dogwood	•		•			•	•	•		•	•		•	•		•	•	•
Eubotrys racemosa	fetterbush			•	•		•	•	•		•	•		•			•	•	•
Hydrangea arborescens	wild hydrangea		•				•	•	•		•	•		•				•	
Ilex decidua	deciduous holly	•	•	•				•		•	•		•		•		•	•	•
Ilex verticillata	winterberry	•	•	•			•	•	•		•	•		•	•		•	•	•
Itea virginica	Virginia willow	•	•	•				•		•	•		•				•	•	•
Leucothoe axillaris	coastal dog-hobble		•					•		•			•				•	•	•
Lindera benzoin	spicebush	•	•	•			•	•	•		•		•				•	•	•
Myrica cerifera	Southern wax myrtle	•	•	•				•		•	•		•	•			•	•	•
Rhododendron viscosum	swamp azalea			•	•		•	•	•		•	•		•	•		•	•	•
Rubus allegheniensis	Alleghany blackberry	•	•	•			•	•			•	•					•	•	•
Salix sericea	silky willow			•	•		•	•			•	•		•			•	•	•
Sambucus canadensis	common elderberry	•	•	•			•	•	•		•	•		•	•		•	•	•
Spiraea alba	narrow-leaved meadowsweet	•	•	•			•				•	•		•			•	•	•
Spiraea latifolia	broad-leaved meadowsweet	•	•	•			•				•	•		•			•	•	•
Vaccinium corymbosum	highbush blueberry	•	•	•			•	•	•		•	•		•	•		•	•	•
Viburnum dentatum	Southern arrow-wood viburnum	•	•	•			•	•	•		•	•		•	•		•	•	•
Viburnum prunifolium	black-haw viburnum	•	•	•			•	•	•		•	•		•				•	•

Medium Troop

[illegible][illegible]

RESTORATION/ESTABLISHMENT TABLE A

A. ¼ acre or less of buffer

(Up to 10,890 square feet or less of buffer area.)

For every 400 square-foot unit (20'x20') or fraction thereof, plant:

one (1) canopy tree @ 1½" - 2" caliper or large evergreen @ 6'
two (2) understory trees @ ¾" - 1 ½" caliper or evergreen @ 4'
or one (1) understory tree and two (2) large shrubs @ 3'-4'
three (3) small shrubs or woody groundcover @ 15" - 18"

Example:

A 100-foot wide lot x 100-foot wide buffer is 10,000 square feet.

Divide by 400 square feet (20'x20' unit) to get:

25 units

<u>Units</u>	x	<u>plant/unit</u>	<u>Number of plants</u>
25 units	x	1 canopy tree	25 canopy trees
		2 understory trees	50 understory trees
		3 small shrubs	<u>75 small shrubs</u>
			150 plants

RESTORATION/ESTABLISHMENT TABLE B

Greater than ¼ acre of buffer

More than 10,890 square feet

A. Plant at the same rate as for ¼ acre or less.

B. The waterside 50% of the buffer (from the waterline inland for the first 50 feet):
 For every 400 square-foot unit (20'x20') or fraction thereof plant:

one (1) canopy tree @ 1½" - 2" caliper or large evergreen @ 6'
two (2) understory trees @ ¾" - 1 ½" caliper or evergreen @ 4'
or one (1) understory tree and two (2) large shrubs @ 3'-4'
three (3) small shrubs or woody groundcover @ 15" - 18"

AND

The landward 50% of buffer (from 50 feet inland to 100 feet inland):
 either plant

Bare root seedlings or whips at 1,210 stems per acre¹, approximately 6'x6' on center (Minimum survival required after two growing seasons: 600 plants)

or

Container grown seedling tubes at 700 per acre approximately 8'x 8' on center (Minimum survival required after two growing seasons: 490 plants)

C. If the applicant is willing to enter into a five year maintenance and performance guarantee: 100% of buffer planted with:

Bare root seedlings or whips at 1,210 per acre, approximately 6'x 6' on center (Minimum survival required after two growing seasons: 600 plants)

or

Container grown seedling tubes at 700 per acre approximately 8'x 8' on center (Minimum survival required after two growing seasons: 490 plants)

1 acre or more of buffer

With an evaluation from an arborist or forester or other professional, natural regeneration may be an acceptable method of buffer establishment, however, a forestry management plan must be in place prior to any vegetation being removed. A minimum of 35 feet next to the water must be left in forest and protected prior to any vegetation being removed. If over 20 percent of the vegetation must be removed for the health of the woodlot, within the 35 feet closest to the shoreline, vegetation must be reestablished by seedling plantings at the rates above.

¹ Palone, Roxanne S., and Al Todd, *Chesapeake Bay riparian handbook: A guide for establishing and maintaining riparian forest buffers*. May 1977. p. 7-20.



PROPOSED

Riparian Buffer Protection Standards

As part of the Stream Health Initiative, Albemarle County is proposing to enhance and move the stream buffer rules to the County's Zoning Ordinance under a new name: the Riparian Buffer Protection Standards. The Board of Supervisors will decide whether to adopt these changes at an upcoming public hearing.

The goal of these standards is to:

- protect plant life along rivers and streams,
- restore and strengthen buffer requirements that were reduced in 2014, and
- make sure County rules align with Virginia's Chesapeake Bay Preservation Act.

The proposed standards would require property owners to keep existing native forest vegetation within stream buffers, whether or not they are developing their land.

The rules would not require property owners to plant new trees. However, existing native forest vegetation in the buffers would have to remain.

Some land uses within these buffer areas would be allowed without County approval. Others would require approval and steps to lessen environmental impacts.

WHAT WOULD BE PERMITTED IN THE RIPARIAN BUFFERS?

- Removing dead or diseased trees, as well as invasive plants and noxious weeds
- Building unpaved walking trails
- Maintaining areas that are already mowed or paved, as long as they are not expanded
- Continuing or starting agricultural uses and forestry operations, as long as state-required Best Management Practices are followed
- Other activities may be allowed, but some may require planting new vegetation to offset impacts

WHAT ARE RIPARIAN BUFFERS?

A riparian buffer is a strip of vegetated land located next to a stream, reservoir, wetland, or pond. A healthy buffer includes trees, shrubs, and groundcover that help keep streams clean and functioning well by:

- Slowing and filtering runoff so less pollution, nutrients, and sediment reach the water
- Preventing erosion and helping keep stream banks stable
- Providing shade and habitat for fish and other aquatic life

WHERE ARE RIPARIAN BUFFERS?

Rural Area: Riparian buffers are 100 feet wide on both sides of all streams, whether the stream flows all year or only part of the year. Buffers also apply around in-stream ponds and within the Flood Hazard Overlay District.

Development Areas: Buffers are 100 feet on both sides of streams that flow year-round. In the Crozet Development Area, buffers also include the Flood Hazard Overlay District and 50 to 100-foot buffers on streams that only flow during wetter times of the year.

Where streams have adjacent wetlands: Buffers start at the edge of the wetland, not at the stream bank.

Near public water-supply reservoirs: Buffers extend 200 feet from the outer edge of the Flood Hazard Overlay District.

WHAT WOULD NOT BE PERMITTED IN THE RIPARIAN BUFFERS?

Unless it is necessary for an allowed activity (and in some cases requires mitigation), the following would not be permitted:

- Building new structures
- Clearing native forest vegetation, except for approved agricultural or forestry uses
- Removing trees or shrubs just to create views or sightlines
- Filling or grading land



Acceptable and unacceptable buffer activities are listed in the boxes below.

— What can I do in my buffer area? —

- 💧 can establish foot access to water
- 💧 can remove dead/dying/diseased trees, noxious weeds, and invasive exotic plants
- 💧 can establish reasonable sightlines and vistas

"It is easier and cheaper to leave existing buffers than to plant new ones ."

— What can't I do in my buffer area? —

- 💧 building activities are not permitted in the buffer area
- 💧 clear cutting of vegetation to achieve sight lines or vistas
- 💧 converting groundcover plants to turf grass
- 💧 filling and grading land
- 💧 applying pesticides, herbicides, and fertilizer is discouraged



Unacceptable removal of vegetation for vista.

Source: CBLAD

In June of 1991, Albemarle County became the first (and remains the only) non-Tidewater locality in Virginia to voluntarily adopt a local Chesapeake Bay protection ordinance that requires buffers and limits activities along waterways. Buffers play a critical role in improving the water quality of tributaries that flow into the Chesapeake Bay. With your assistance we can help make the restoration of the Chesapeake Bay ecosystem a reality.

— Consequences —

- 💧 A buffer area shall be maintained if present and allowed to establish where it does not exist.
- 💧 If the buffer area is disturbed, the County will require the property owner to plant new vegetation to correct the problem and may impose monetary fines.

If you have questions regarding your buffer area, please contact:

Natural Resources Manager
Department of Community Development
Albemarle County, VA
401 McIntire Rd., Charlottesville 22902
(434) 296-5832 x3264

Additional Resources:

Chesapeake Bay Local Assistance Department;
Riparian Buffer Modification & Mitigation Guidance Manual
(<http://www.cblad.virginia.gov/ripbuffstat.cfm>)

Buffers and Water Quality

A property owner's guide to manage riparian buffers and protect water resources



Reflects revisions of 2-6-08



You play a critical role in the health of our streams, rivers, and reservoirs. As a property owner in Albemarle County, you are responsible for the long-term maintenance of riparian buffers along waterways on your land. This pamphlet was designed to provide guidance to help you understand and meet these obligations.

What are riparian buffers?

A riparian buffer is an area of vegetation adjacent to a stream, reservoir, wetland, or pond that is managed and protected. A healthy buffer consists of trees, shrubs, and ground cover that:

- slows down and filters stormwater runoff to protect water quality
- prevents erosion
- provides shade and habitat for fish and other aquatic life

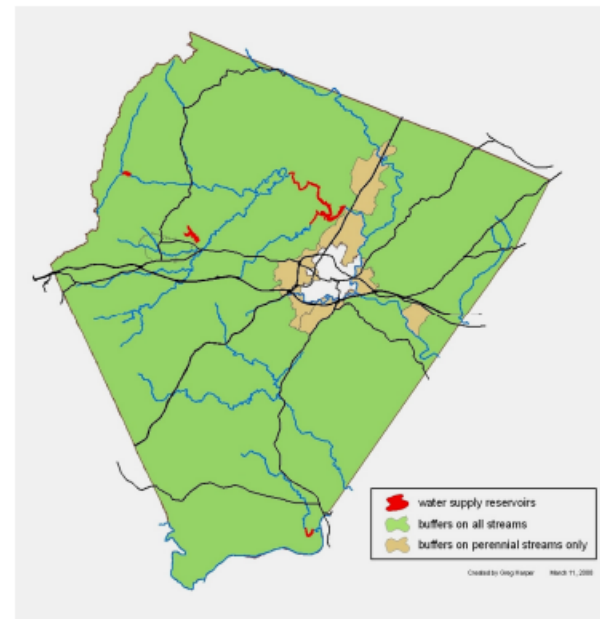
Why are riparian buffers important?

Buffers retard runoff, prevent erosion, and filter nonpoint source pollution. Buffers have a profound impact on the health of streams, rivers, and reservoirs. Buffers protect water quality, stabilize stream channels and shorelines, provide important habitat and food for fish and wildlife, reduce sedimentation and erosion, filter pollutants like nitrogen and phosphorus, and moderate water temperature by providing shade.

Where are buffers required?

Albemarle County's Water Protection Ordinance requires that buffers be preserved or established along certain water features. Specific requirements depend on where you reside. General guidelines are listed below (refer to map at right):

- In the majority of the County (rural lands and areas that drain to public water supply reservoirs and intakes), 100-foot buffers are required on both sides of **all** streams, regardless of whether they flow year-round or just part of the year.
- In the remainder of Albemarle County (areas in tan), 100-foot buffers are required on both sides of streams that flow year-round.
- On lands adjacent to public water supply reservoirs (areas in red), buffers must extend 200 feet from the 100-year floodplain.
- Around ponds associated with streams requiring buffers, 100-foot buffers are required.
- Other requirements may apply along wetlands floodplains.



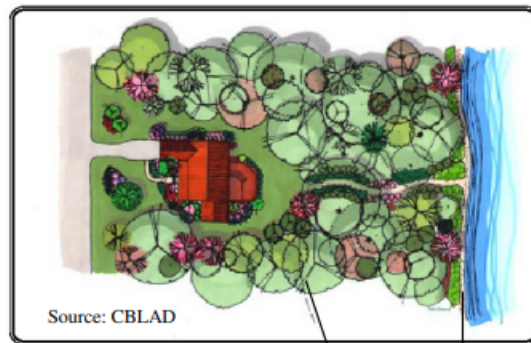
"Buffers can benefit you through increased property values, reduction in noise, and saving land from erosion."

How do I maintain my buffer?

- keep existing areas wooded
- allow for native plants to establish
- minimize lawn area; grass root systems are not strong enough to resist erosion along stream banks

The diagram at left shows how you can provide an access path to the water, a view of the water from the house (sight line), and maintain the 100-foot buffer.

Diagram of buffer area



Source: CBLAD

100 foot buffer

Where are the buffers?

Development Area	Not within a water supply protection area	100 feet wide on each side of any perennial stream and contiguous nontidal wetlands
	Within a water supply protection area	The wider of either i) 100 feet on each side of any perennial or intermittent stream and contiguous nontidal wetlands, or ii) the limits of the Flood Hazard Overlay District. (Structures permitted in outer 50 feet on intermittent streams, with mitigation plan).
Public water supply impoundments	200 feet located adjacent to and landward of any such impoundment as measured horizontally from the limits of the Flood Hazard Overlay District	
All other locations	The wider of either i) 100 feet on each side of any perennial or intermittent stream and contiguous nontidal wetlands or ii) the limits of the Flood Hazard Overlay District	

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