



**Catoclin Creek Scenic River Advisory Committee**  
*Protect, Preserve and Explore!*

Loudoun County Zoning Rewrite Staff, Board of Supervisors and Planning Commission  
Loudoun County, Virginia

July 10, 2022

Sent via email to: [zorewrite@loudoun.gov](mailto:zorewrite@loudoun.gov), [BOS@Loudoun.gov](mailto:BOS@Loudoun.gov) and [LoudounPC@Loudoun.gov](mailto:LoudounPC@Loudoun.gov)

Dear County Zoning Staff, Members of the Board of Supervisors and Planning Commission:

The Catoclin Creek Scenic River Advisory Committee is the voice of the scenic river as it winds its way to the Potomac River. Protection of the creek, its viewsheds, its natural resources and history are paramount to our mission. This is best accomplished when the riparian areas are mapped and designated formally as a zoning Overlay District and that viewshed analysis be required along the scenic rivers.

The Catoclin Creek Scenic River Advisory Committee requests that two fundamental revisions be included in the Draft Zoning Ordinance. We are requesting the following changes to:

- Implement the **River and Stream Resource as an “Overlay District”** in Chapter 4, and
- Include **viewshed analysis** requirements for proposed development (by-right and legislative) along State-Designated Scenic Rivers (Goose and Catoclin Creeks)

In order to be an effective Overlay District, the River Stream Corridor Resource needs to be definitively mapped and procedures incorporated to allow for updates over time consistent with other overlays districts including the Limestone Overlay, Mountainside Overlay and Floodplain Overlay Districts. We suggest that this Overlay District be named: **“River and Stream Resource Overlay District (RSROD)”**.

As currently drafted, the **“River and Stream Corridor Resource (RSCR) Management Areas”** appear as Development Standards in Chapter 5. The revision that we request is that the Zoning Ordinance formally define a River and Stream Corridor Resource Overlay District in Chapter 4. We believe that to be effectively enforced, a mapped overlay is the best approach.

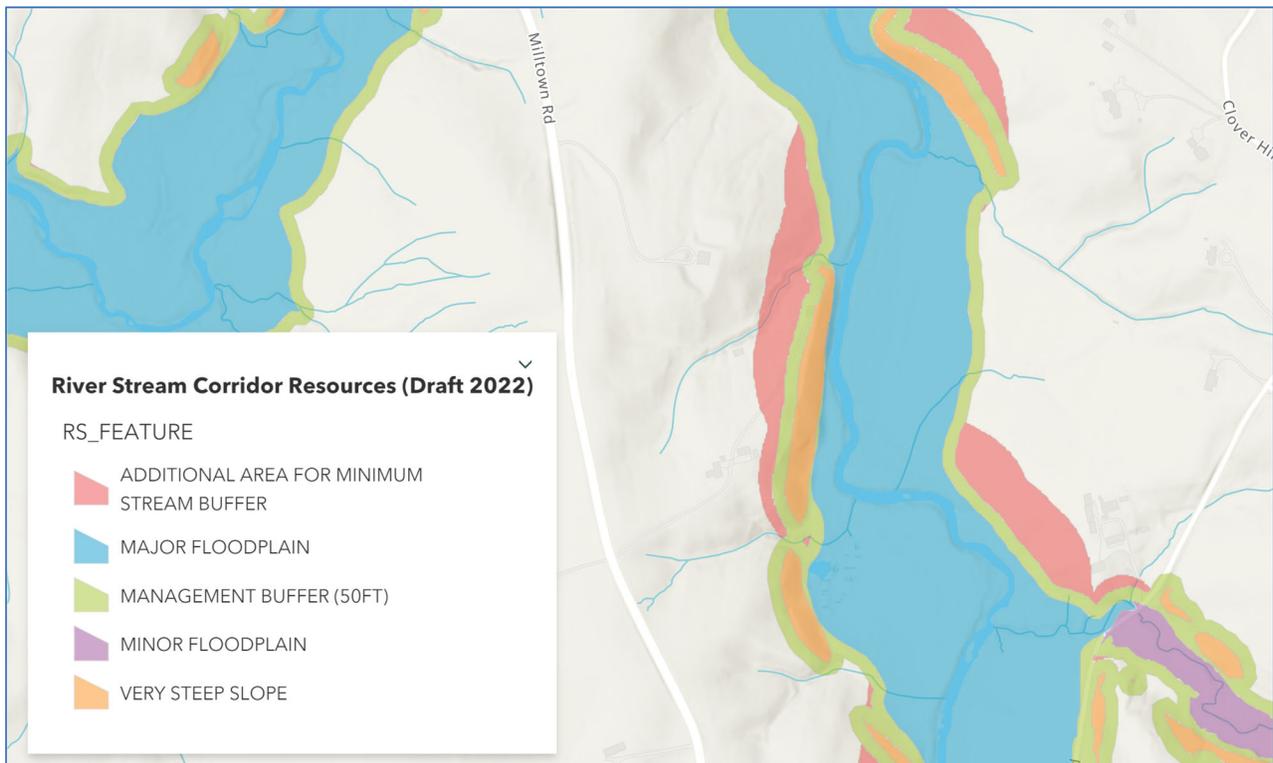
This request is in line with the former **“River and Stream Corridor Overlay District (RSCOD)”** which was approved and enacted, but shortlived in 2004. It was rescinded due to a technicality associated with advertisement and not technical details. The attachment to this letter provides a comparison of the former RSCOD and the proposed RSROD.

The zoning rewrite does not include a map, although there is a RSCR map in the 2019 Comprehensive Plan. Unfortunately, because of the scale of a static map, it is difficult to envision where the setbacks are. We have obtained GIS data from the Loudoun County Office of Mapping and have assembled our own map using the setback elements as described in Chapter 5. The draft Zoning describes setbacks are measured from “bankfull bench”. This requirement is an unnecessary complication in which most stream reaches



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are dominated by the Floodplain Overlay District. The additional buffer by measuring from bankfull bench rather than edge of water is insignificant. We estimate that for the majority of perennial streams the additional bankfull consideration only adds a few feet to at most a few tens of feet. This is rightly addressed in the additional 50-ft management buffer already included in the performance standard. In our mapping analysis, we have dropped the bankfull width setback.



We provide side-by-side interactive map comparisons at <https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4> which is included as a static attachment to this letter. The interactive website allows search by address.

Note further that the River and Stream Corridor Resource as described in the Draft Zoning Ordinance does not include the 200-ft transition buffer which the Board of Supervisor Approved on June 1, 2021. The full width of the 500-foot buffer along the Goose Creek, Catoctin Creek, Goose Creek Reservoir, Beaverdam Reservoir, Broad Run, Bull Run and Potomac River shoreline should be revised per Board direction.

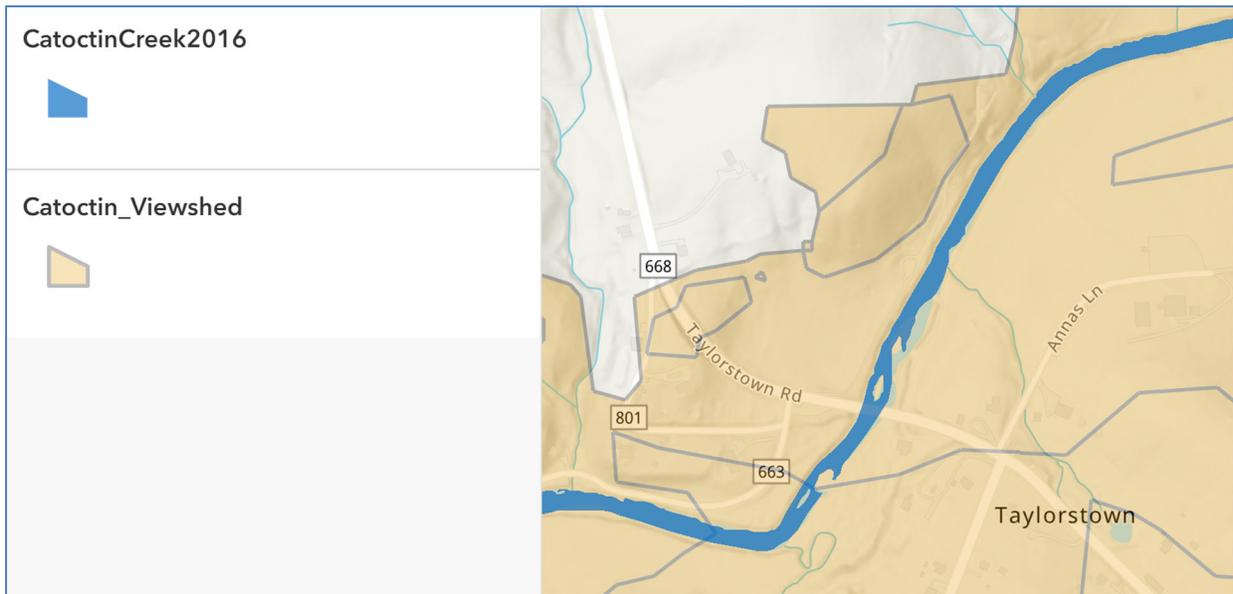
We applaud the update designations of River and Stream Resource Management Area which will replace the **1993 Scenic Creek Valley Buffer Ordinance (ZO93)**. This nearly 30-year old ordinance is fatally flawed with unnecessary exceptions to the setbacks. We have observed several new homes constructed along the scenic portion of Catoctin Creek that are visibly close to the water's edge. The setback per ZO93 is 200 feet, but this is often reduced to 100 feet. The houses are clearly visible from the creek and detracts greatly from the scenic river which was designated by the State in 1976.



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The second request is that zoning include a requirement for a **viewshed analysis**. As described in the 2019 Comprehensive Plan, *“Prepare and implement corridor management plans, including identifying and defining viewsheds for the County’s Scenic Rivers to protect their natural and scenic quality.”* Per Historic, Archaeologic, and Scenic Resources, HASR Policy 5, Strategy 5.1, Action O. Note further that the Comprehensive plan calls for *“A viewshed analysis for a Scenic River typically involves looking at both the view from the resource itself as well as the view towards the resource.”*

For example, development in the vicinity must require a viewshed analysis supported by field photographs.



<https://earthward.maps.arcgis.com/apps/mapviewer/index.html?webmap=5d158ea1aaec42a0a6256b5e6a676772>





**Catoctin Creek Scenic River Advisory Committee**  
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The Catoctin Creek Scenic River Advisory Committee was established by the Virginia Scenic Rivers Program. The Program's intent is to identify, designate and help protect rivers and streams that possess outstanding scenic, recreational, historic and natural characteristics of statewide significance for future generations. One of the Program's strength is the partnership forged between citizens, local government and the state. The Committee's focus is to build and utilize those partnerships in support of the health of the creek and preservation of the scenic corridor. Please view our "Story" at <https://earthward.maps.arcgis.com/apps/MapJournal/index.html?appid=28107b0f471d4fd099b29c99b4affc06>

Our mission is to preserve, protect and explore this wonderful natural resource. The Catoctin Creek Scenic River Committee can be reached at [CatoctinScenicRiver@gmail.com](mailto:CatoctinScenicRiver@gmail.com).

Sincerely,

Bruce Johnson, Chair  
Catoctin Scenic River Advisory Committee, Chair  
[www.CatoctinScenicRiver.org](http://www.CatoctinScenicRiver.org)  
<https://www.facebook.com/CatoctinScenicRiver>

Committee Members:

Eleanor Adams  
Bruce Johnson  
Joan Linhardt  
Carol Matheny  
David Nelson  
Patti Psaris  
David Ward

cc: Samantha Wangsgard, Virginia Department of Conservation and Recreation, Planning & Recreation Resources, Scenic Rivers Program ([Samantha.Wangsgard@dcr.virginia.gov](mailto:Samantha.Wangsgard@dcr.virginia.gov))



# River and Stream - Zoning Review

Comparison of previous and current stream buffers

David Ward - Catoctin Creek Scenic Creek Advisory Committee

July 8, 2022

In the 2022 the Loudoun County, VA Draft Zoning re-write, a new "map" of riparian buffers has been defined. This StoryMap provides a visual display in support of developing review comments of the draft text. In summary, the draft buffer areas are similar to those from 2004 and should be adopted as an overlay district.

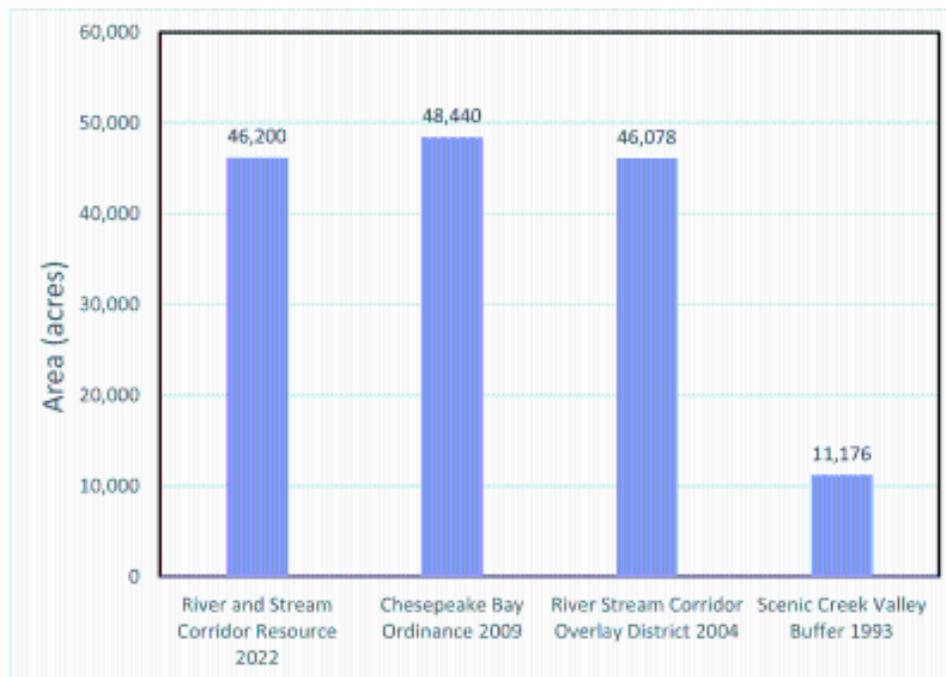
To best understand the new river and stream resource, a comparison with other management buffers is presented here. There are four maps of stream protection areas:

- 2022 DRAFT River Stream Corridor Resource Management Areas (RSCR)
- 2009 Chesapeake Bay Preservation Ordinance (CBPO) - Never adopted
- 2004 River Stream Corridor Overlay District (RSCOD) - Rescinded

- 1993 Scenic Creek Valley Buffer Zoning (SCVB) - Current zoning

Currently the effective zoning is based on the Scenic Creek Valley Buffer ordinance circa 1993 which has never been mapped at a County scale, however has been in use for 29 years. Development applications currently reply on the applicants to show their interpretation of the Scenic Creek Valley Buffer using a rather obscure definition of channel "scar line" and nontraditional measurements taken along the slope of the buffer. An approximate map representation shown below was recently created and offers a reasonable estimate of buffer.

In comparing the applicable areas, the Scenic Creek Valley Buffer is limited to major floodplain.



Total buffer area in acres.

The river and stream protection areas maps exclude the five towns as Loudoun County zoning only applies to unincorporated areas of the county.

The Draft 2022 RSCR is designated using conventional definition of bankfull benches and commonly used horizontal distance measurements. and is a composite of several buffers:

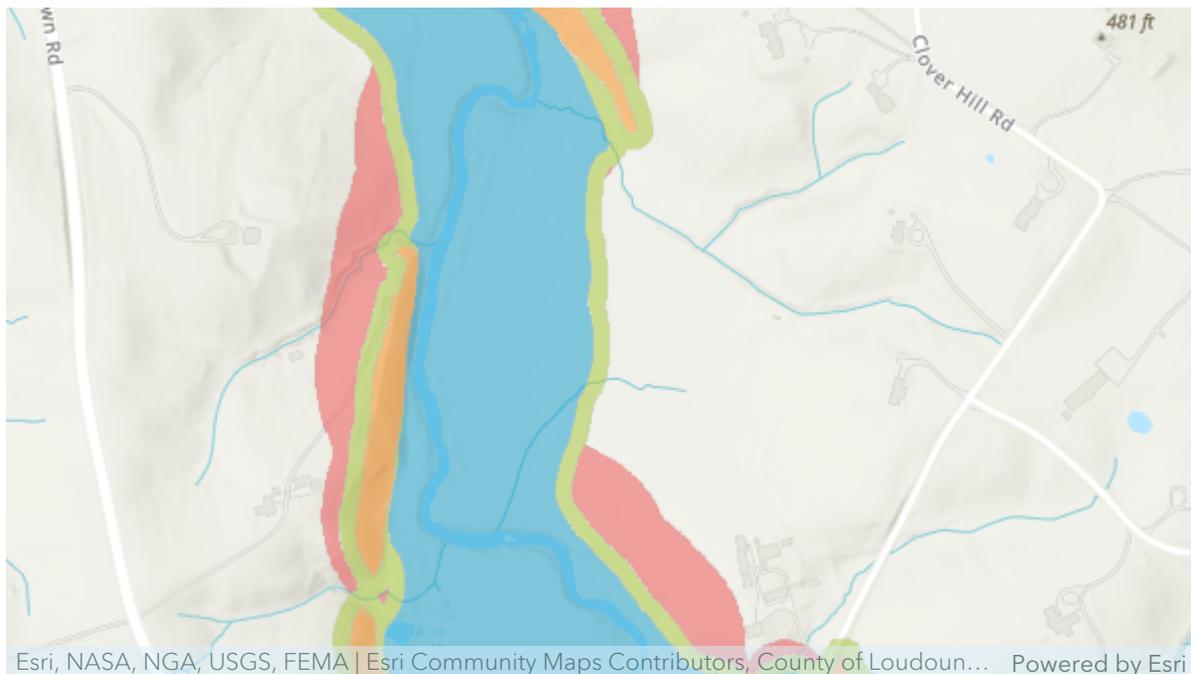
- Floodplains (major and minor) for 1% change or as it is commonly referred to 100-year flood, and
- Additional Management area (50 feet), and
- Minimum 300 foot wide buffer measured from the bankfull bench along each side of Scenic Rivers, the Potomac River, and Bull Run, or
- Minimum 100 foot wide buffer measured from the bankfull bench along each side of all other rivers and streams, and
- Very Steep slopes (terrain grade is greater than 25 percent).

Use the search tool in upper left of the below map of the 2022 Draft RSCR Management Area map with your address.

Note that the GIS files shown below were provided upon request to Loudoun County Office of Mapping in 2022. The data were assembled, however without bankfull bench distances. The County does not have an interactive display of the the river resources areas for public viewing, just the static map in the 2019 Comprehensive Plan.

Note further that the GIS files received do not reflect the approved 200-ft additional transitional buffer per Board of Supervisors June 1, 2021 meeting. There should be a total buffer of 500-feet along the Goose Creek, Catoctin Creek, Goose Creek Reservoir, Beaverdam Reservoir, Broad Run, Bull Run and Potomac River shoreline. In other words, the current draft does not reflect BOS approved 500-ft buffer on major waterways.

*These maps may be very slow to load, so please be patient...*



DRAFT River and Stream Resources 2022 (per zoning rewrite).

In 2009 the County had considered voluntary adoption of the Chesapeake Bay Preservation Act. The protection includes all wetlands and the riparian buffer width of 100 feet on each side of perennial streams.

The Chesapeake Bay Preservation Areas (CBPA 2009) dataset is comprised of Resource Protection Areas (RPA), Resource Management Areas (RMA), Perennial Waterbodies, and Non-Jurisdictional Areas. An RPA is (i) all wetlands connected by surface flow and contiguous to water bodies with perennial flow; and (ii) a 100-foot Buffer Area measured horizontally from, and located adjacent to and landward of (i) and along both sides of any water body with perennial flow, as measured horizontally from the channel scarline. An RMA is all areas of the County not designated as a Resource Protection Area. [Click here](#)

In 2004 the River Stream Corridor Overlay District (RSCOD), the district areas are composed of:

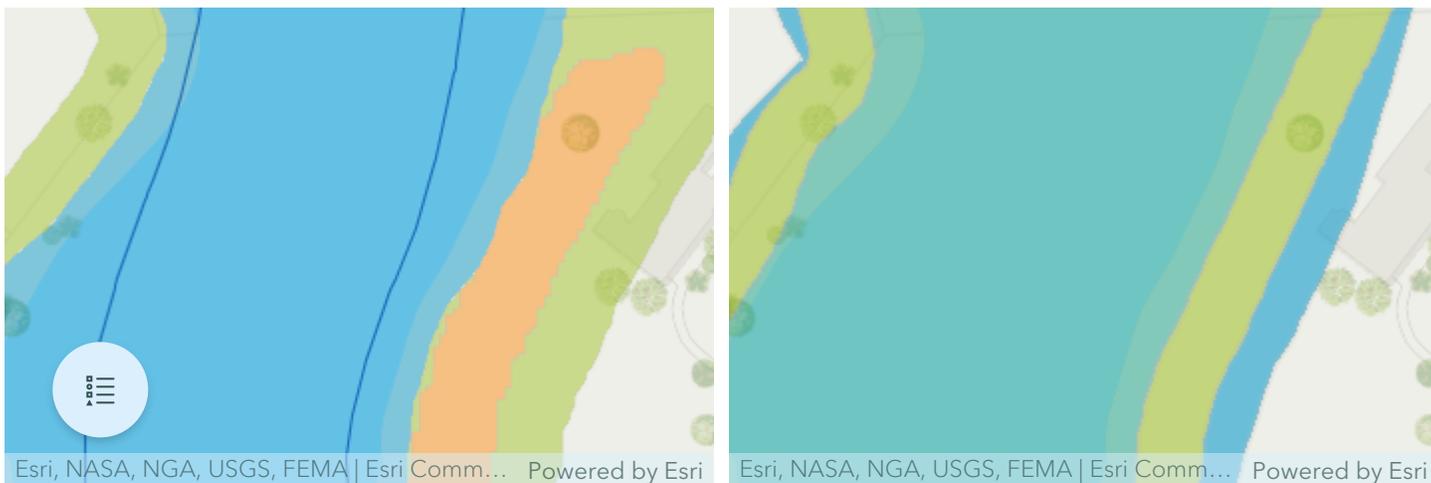
- Floodplain - boundaries reflect the limits of flooding resulting from a storm having an occurrence probability of 1% - identified as the 100-year storm, and
- Steep Slopes as derived from the soil layer, and
- Riparian buffers of 100 feet around rivers and streams that drain more than 100 acres, and
- Riparian buffers of 300 foot buffers around Beaverdam and Goose Creek Reservoirs, the Potomac River, Bull Run and state designated scenic rivers of Goose Creek and Catoctin Creek.

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The 1993 Scenic Creek Valley Buffer ordinance has been in effect for the past 29 years. It is defined by inclusion (greater of) of:

- Major floodplains, and
- 250 feet measured along the slope of the ground from the channel scar line on the Potomac River, and
- 200 feet on each side of the creek measured along the slope of the ground from the channel scar line of the Scenic River designated portions of Goose Creek and Catoctin Creek, and
- 150 feet on each side of the creek measured along the slope of the ground from the channel scar line of each creek or stream not mentioned above, and
- Subject to 100 foot setback (reductions) when Forest Management or stormwater management facilities are included.

You can compare RSCR and RSCOD or RSCR and SCVB below using a swipe maps.



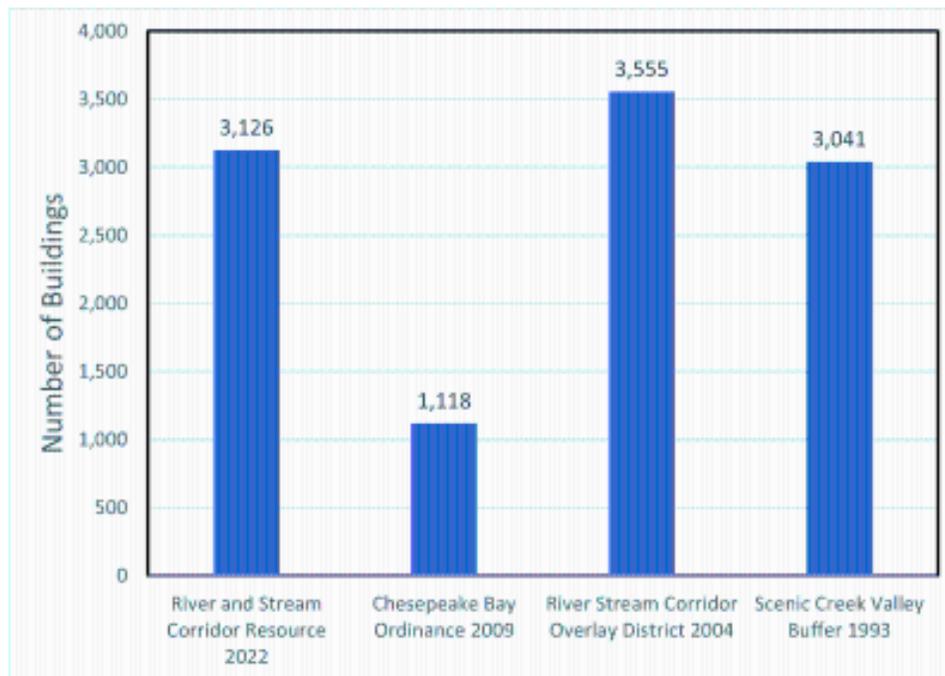
Swipe comparison - 2022 RCSR on left and 2044 RSCOD on right.

The map element are summarized as follows:

Buffers or Setbacks	River and Stream Corridor Resource 2022	Chesapeake Bay Ordinance 2009	River Stream Corridor Overlay District 2004	Scenic Creek Valley Buffer 1993
Floodplain	Yes	Not included	Yes	Not included
Scenic River (Goose and Catoclin Creek)	300 ft	Not included	300 ft	200 feet
Potomac River	300 ft	Not included	300 ft	250 feet
Reservoirs	?	Not included	300 ft	Not included
Stream	100 ft	100 ft	100 ft	150 feet
Extent of Streams included	Within all floodplains	All perennial streams (possibly beyond floodplain)	Within all floodplains	Just in Major Floodplain
Starting Measurement Point	Bankfull Bench			Scar Line - along slope
Additional Management Area	30 feet	Not included	30 feet	Not included
Steep Slopes	Very Steep Slopes (> 25%)	Not included	All Steep Slopes	Not included
Wetlands	Not explicitly	yes	Not explicitly	Not explicitly
Setback Reduction	Not included	Not included	Not included	Reduced (100 ft) or no setback with management plans or a stormwater facility
Existing lot development	All lots as of 2022	Not included	Not included	One residential as of 1993

Map component summary.

Using buildings with area greater than 850 sq ft (i.e., exclude sheds), the number of buildings within each zone show that the CBPO has far less than other maps. These "buildings" may be existing homes or barns and might be non-conforming structures. These "buildings" are a small percentage of the 100,000 buildings in Loudoun County.



Number of buildings in stream protection areas.

### Summary Comments:

The 2022 RSCR Management Areas are similar to 2004 RSCOD Overlay District.

Differences in the allowable uses in RSCR and RSCOD is not known in detail, but are likely similar.

The current 1993 SCVB applies to substantially less area and allows for unnecessary setback reductions.

None of the maps areas address headwater protection (intermittent or ephemeral streams).

None of the mapping strategies address imperviousness or population or road crossings.

Management areas do not consider existing stream health and EPA-designated impairments due to excessive pollution (bacteria, sediment, etc.).

Management areas do not include analysis and recommendations for pollution reduction in Watershed Management Plans (Upper Broad Run and Western Hills) which only cover 25% of Loudoun).

None of the management areas consider forest cover or land use classification.

The current 300-ft setback along major waterways should be 500 feet to reflect the decision on June 1, 2021 BOS Business meeting.

### **Photo Credits**

Cover image overlooking Catoctin  
Scenic River, just north of  
Waterford

Lauren Hart



**ZOAM-2020-0001-Zoning Ordinance Rewrite (ZOR)--  
DRAFT TEXT INPUT**  
**Prepared by Catoctin Creek Scenic River Advisory Committee**

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT
4.01 General Provisions of Overlay Districts	4.01 Why is there no re-instatement of the River Stream Corridor Overlay District (RSCOD) which was overturned on technicality in advertisement back in 2004? The RSCOD was approved and temporarily adopted in 2003-2004 and can easily adopted now. The draft language of RSCR is very close to that of the former RSCOD, so there should be no problems with adoption as an overlay district.
4.01 General Provisions of Overlay Districts	4.01 Why is there no overlay district for protection of streams and riparian zone? The 2019 General Plan states that the River and Stream Corridor Resources (RSCR) "constitute the County's largest natural ecosystem, supporting air quality, water quality, and biological diversity. If the floodplain and adjacent steep slopes are less than 100 feet beyond either stream bank, a 100-foot minimum stream buffer will protect the river and stream corridor. The buffers help to maintain stream bank stabilization, temperature moderation, flood control, and aquatic habitat as well as filter nutrients and sediments from upland disturbances and adjacent development. Because rivers and streams and their associated floodplains are dynamic, the buffers help to ensure that development adjacent to the floodplain today will not be in the floodplain in the future. The 50-foot management buffer can be reduced if it can be shown that a reduction does not adversely impact the floodplain, adjacent steep slopes, wetlands, and riparian forests of the river and stream corridor only guidance. The RSCR is mapped on page 14 at <a href="https://www.loudoun.gov/DocumentCenter/View/152286/General-Plan---Maps">https://www.loudoun.gov/DocumentCenter/View/152286/General-Plan---Maps</a> Therefore the RSCR is "mapped" and should be designated as an overlay district in Chapter 4.
4.01 General Provisions of Overlay Districts	4.01 What replaces the current implementation in the Revised Zoning Ordinance 1993 (R93ZO) Scenic Creek Valley Buffer ordinance Section 5-1000? It appears to be the RSCR which is a performance standard and should be identified as an overlay district.
5.03.01 River and Stream Corridor Resources	5.03.01 Where is no overlay district to protect streams? The current 2-page 1993 Scenic Creek Valley Buffer ordinance that has governed development for the past 28 years, has been shown by the poor stream health as indicated by the EPA-approved stream impairments to be inadequate. As a result of uncontrolled land development, we have seen significant and ever increasing degradation on stream aquatic life and habitat, both of which are critical to maintaining the scenic beauty of the waterways. Therefore the RSCR should be implemented formally as an overlay district and be mapped as such.

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT
5.03.01 River and Stream Corridor Resources	5.03.01 Where is protection from dam inundation and zoning implementation in the form of a Subdivision ordinance? The Code of Virginia states that a Subdivision ordinance shall include reasonable regulations and provisions which include impact within dam inundation zones. Regulations: Code of Virginia 15.2-2241(A)3 Section 3. "For adequate provisions for drainage and flood control, for adequate provisions related to the failure of impounding structures and impacts within dam break inundation zones, and other public purposes, and for light and air, and for identifying soil characteristics;" per <a href="https://law.lis.virginia.gov/vacode/title15.2/chapter22/section15.2-2241/">https://law.lis.virginia.gov/vacode/title15.2/chapter22/section15.2-2241/</a>
5.03.01 River and Stream Corridor Resources	5.03.01 Where is conditional permitting process implemented in cases where the is dam inundation impacts? According to Code of Virginia § 15.2-2295.2. Dam break inundation zones. "A locality may by ordinance require the modification of an application for zoning modification, a conditional use permit, or a special exception for the area of a development that is proposed within a mapped dam break inundation zone." per <a href="https://law.lis.virginia.gov/vacode/title15.2/chapter22/section15.2-2295.2/">https://law.lis.virginia.gov/vacode/title15.2/chapter22/section15.2-2295.2/</a> The State has allowed the County to regulate development in the inundation zone, therefore there should be conditional permitting, possibly as a special exception, prior to development approval.
5.03.01 River and Stream Corridor Resources	5.03.01 Where is the public display of a zoning map of dam inundation? The map which must include mapping and protection of properties though public display and posting of dam inundation zones as required per Code of Virginia 15.2-2224-2 Section B. "The comprehensive plan shall recommend methods of implementation and shall include a current map of the area covered by the comprehensive plan. 7. A map of dam break inundation zones." Please include a map of inundation zones.
5.03.01 River and Stream Corridor Resources	5.03.01 Where is the map of groundwater recharge areas? Zoning must include overlay districts and/or identification of recharge areas required to ensure continued availability, quality, and sustainability of groundwater and surface water as required by Code of Virginia 15.2-2223(C) 4. "The designation of areas for the implementation of reasonable measures to provide for the continued availability, quality, and sustainability of groundwater and surface water;" Furthermore, the map needs to routinely updated as development occurs in the form of imperious area.
5.03.01 River and Stream Corridor Resources	5.03.01 Can an interactive (Web GIS) version of the RSCR map be made available? The scale is such that we are unable to view and assess the various zones. There is a RCSR Map included in the 2019 Comprehensive Plan. Using data provided by Office of Mapping we created an interactive map at <a href="https://earthward.maps.arcgis.com/apps/mapviewer/index.html?webmap=e4a3f9df98ee4804bb58a2ead1047a57">https://earthward.maps.arcgis.com/apps/mapviewer/index.html?webmap=e4a3f9df98ee4804bb58a2ead1047a57</a> This was done by excluding the distance from "Bankfull Bench" which is unmappable at County scale and an unnecessary encumbrance offering limited ecological protection on water quality.
5.03.01 River and Stream Corridor Resources	5.03.01 Has the county mapped stream bankfull benches through all river reaches in the County? If so, how? Did this cover the over 1,500 miles of perennial streams? Are these included in the static RSCR map? It would seem that adding bankfull benches is an unnecessary complications. There is no mention of bankfull benches in the 2019 Comprehensive Plan. It is an unnecessary complication which appears in the DRAFT Zoning ordinance which should be stricken.

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT
5.03.01 River and Stream Corridor Resources	5.03.01 When will the County map the true extent of perennial streams? This is critical to include all perennial stream in the RSCR Management Area. There is an ad-hoc representation of perennial streams using historical soil drainage lines. These drainage lines were estimated to be about 900 miles which is larger than the USGS blue lines of about 500 miles. Nonetheless, the soil drain lines do not display the estimated 1,500 stream miles as identified and estimated in the 2009 Loudoun County Stream Assessment. In other words, it is know that perennial stream extend further upstream than the current RSCR Management Areas which stop at the 100-acre drainage area watershed. In 2009 there was a statistical analysis in a memo by staff presented to the Water Rersources Technical Advisory Committee of the 155 perennality points field verified in 2009 in which the drainage areas for headwater perennality streams was between 20 and 40 acres. Therefore the current definition of RSCR should be extended to include a minimum buffer (50 or 100 feet) on headwater streams which drain less than 100 acres.
5.03.01 River and Stream Corridor Resources	5.03.01 Has the County explored the acreage impacted by the River and Stream Management Areas? In the Story Map at <a href="https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4">https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4</a> , the acreage is estimated to be about 42,000 acres. This is comparable to the areas defined in River and Stream Corridor Overlay District which as rescinded in 2004. The proposed River and stream Resource Management Area is about 4 times larger that the area in the once-proposed Chesapeake Bay Preservation Act ordinance of about 11,000 acres.
5.03.01.D	5.03.01.D How are bankfull benches defined? We are pleased to see that the ZOR no longer references the undefined and obscure "scar line" definition.
5.03.01.D	5.03.01.D Rather than use bankfull benches, why not just map from the water's edge? In almost all locations throughout Loudoun, the aggregated width of the River and Stream Resource Management Area will be defined based on floodplain and scenic setback elements. Using bankfull bench only complicates the definition. It cannot realistically be mapped county-wide and impinges on the ability to create a recognized overlay district. The cost of field work to support such mapping is prohibitive. Please keep the definition simple and remove bankfull bench.
5.03.01	5.03.01 How will source water quality be protected if the quarries that Loudoun Water plans to use for water storage are no included in the reservoir protection area? Will there be "reservoir protection areas" added 5 miles up the watershed as we now have for existing reservoir (i.e. Goose Creek Reservoir)?
5.03.01 River and Stream Corridor Resources	5.03.01 What protections are in place for water bodies within the "Reservoir Protection Areas? Will there be an Overlay District defined to protect these source waters? If we are defining Overlay Districts for floodplain and river corridors, it is logical then to use an Overlay District buffering reservoirs. Neighboring Counties have enacted reservoir protection overlays and Loudoun should do so also.
5.03.01.E	5.03.01.E. Why is there not a specific overlay district defined that will be protective of the RSCR Management Areas? Why can't the RSCR Management Area as mapped, become the RSCR Overlay District and be recognized and named as such?

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT
5.03.01.D	5.03.01.D How the edge of the river defined when identifying the RSCR Management areas? Are distances measured from the average river edge per spring photogrammetry ? Are distances measured from normal pool elevations of ponds? At what scale are double line streams mapped as single line streams? These questions and specification are critical to documenting the RSCR map.
5.03.01.D	5.03.01.D Are the Scenic Rivers just those as designated and recognized by the state per Virginia Scenic Rivers Act of 1970, §10.1-400.? What about possible future extension to the Scenic River Designations. The State routinely allows for extensions to be added each year.
5.03.01.D	5.03.01.D If additional river reaches are added to the list of state designated Scenic Rivers, how will this be handled? (Scenic River as designated per Virginia Scenic Rivers Act of 1970, §10.1-400)
5.03.01.D	5.03.01.D Why are RSCR Management Areas defined using bankfull benches, when identification of the bench requires detailed on the ground field inspection and is generally used only in discussion of stream restoration projects? There are many, many reaches in Loudoun County where identification of bankfull benches are simply non-existent.
5.03.01.D	5.03.01.D Why are RSCR Management Areas defined using bankfull benches, when there are many reaches in Loudoun County where identification of bankfull benches are simply impossible?
5.03.01.D	5.03.01.D What is the procedure that will be used to measure bankfull bench of the RSCR Management Areas?
5.03.01.D	5.03.01.D What professional staff qualifications are required to make bankfull bench determinations? Would a person need to have licenses for PE, PG, Certified Wetlands delineator?

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT
5.03.01.E	5.03.01.E The categories in table 5.03.01E are not logical, hydrologically speaking. In the first section, there are setback for the Scenic Rivers, the Potomac River, Bull Run and Broad Run. Relative to historical designation the 300-foot setback appears to have been extended to also include Bull Run and Broad Run. Bull Run and Broad Run are not included in the 1993 Scenic Creek Valley Buffer Ordinance. The State-designated Scenic Rivers are limited to the primary channel of Catoctin Creek (16 river miles) and the primary channel of Goose Creek (over 25 miles in Loudoun, 48 miles total). The Scenic Rivers do not include tributaries such as (South Fork Catoctin, North Fork Catoctin, Beaverdam Creek, North Fork Goose Creek and others.) The second section with 100-foot setback is for all other streams and rivers. It is unclear exactly what constitutes a stream or river. There are many streams that the USGS has not assigned names. Possibly what is needed here it to identify "Major" streams which can be defined by the drainage area. For example, Catoctin Creek has a drainage area of over 92 square miles. The subwatersheds of North Fork Catoctin and South Fork Catoctin Creek watersheds drain 38.1 and 31.6 square miles, respectively. So the main channel which is close to the State-Designated Scenic River drains about 22 square miles. A logical definition of "major" stream might be watershed larger than 30 to 40 square miles. Watersheds that would not be "major" would include Limestone Branch (7.9 square miles) and Piney Run (13.5 square miles).
5.03.01.E	5.03.01.E How can the outermost 25 feet be allowed to be modified if the Outermost Required Buffer is not the 50-ft management buffer, but is actually the floodplain boundary? It would be inconsistent to allow the Zoning Administrator allow exempt uses in the outermost 25 feet if this is floodplain or steep slopes. This is because the outermost zone in RSCR is not always the 50-ft management buffer. For example, as written, the exemption for a house or barn (5.03.01.E.4.b) which is a structure associated with a principle use should not be allowed if the outermost 25 feet is the floodplain.
5.03.01.E	5.03.01.E Modification of the Outermost Required Buffer. What constitutes a modification? Does this include: tree removal, tree planting, removal of invasive species, dredging, floodplain reconnection or fence construction?
5.03.01.E.4.b	5.03.01.E.4.b What is a "principal" permitted use? Seems like the back reference would allow a single family home, driveway, shed and other structure. This seems to be a major loophole and is not protective of the RSCR Management Area.
5.03.01.D.3	5.03.01.D.3 How are streams defined? Is this all streams including perennial, intermittent and non-perennial? Does this include all "drain" lines at 1:2,400 scale per county basemap GIS? Are streams defined based on outdated USGS "blue lines" Will perenniality be addressed in defining streams, and if, so, what protocol will be used to define perenniality? Will the Fairfax County perenniality method be adopted?
5.03.01.H	5.03.01.H How can the County "legally" prohibit permanent or temporary diversion of any Scenic River? Prohibition is defined in the Code of Virginia in which the required authorization is done by the Virginia General Assembly vote per Code of Virginia - Title 10.1. Conservation » Subtitle I. Activities Administered by the Department of Conservation and Recreation » Chapter 4. Scenic Rivers Act » § 10.1-407. The County is not authorized to control stream diversion.

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT
5.03.01.H	5.03.01.H Can the River and Stream Resources be extended to include headwater streams? For example, the Chesapeake Bay Preservation Act uses a 50-ft buffer around all "perennial streams". In Loudoun County, the cutoff for minor floodplain is 100 acres in defining the floodplain overlay district. However, based on findings from the 2009 Loudoun County Stream Assessment, perennial streams generally extend further into the watershed to drainage areas well below 100 acres. The definition of the River and Stream Corridor Resource management areas should be extended to include a 50-ft buffer around perennial streams in drainage areas less than 100 acres. The ordinance could be implemented through the Facility Standards Manual to allow for exemption based on field perenniality determination. Note that Fairfax County protects all perennial streams.
5.03.01.D.3	5.03.01.D.3 Why is there a 450-foot break in RSCR in PIN 216495854000 north of 42350 LOVETTSVILLE RD as there should be a 100-foot buffer on each side of the stream? See the maps at <a href="https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4">https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4</a> and enter the address.
5.03.01 River and Stream Corridor Resources	5.03.01 Why is the same cyan color used for both water bodies and floodplain? This makes readability of the RSCR Management area difficult to assess, specifically PIN 114256156000. See the maps at <a href="https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4">https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4</a> and zoom to Luckstone Quarry across from 19951 BELMONT STATION DR
5.03.01 River and Stream Corridor Resources	5.03.01 Why are stream centerlines hidden by the floodplain component of the RSCR Management Areas? Without the stream centerline it is more difficult to view the RSCR Management Area.
5.03.01 River and Stream Corridor Resources	5.03.01 Why are inline ponds not buffered and included in the RSCR Management area such as in PIN 267363686000? The address is 40755 CARPER LN. See the maps at <a href="https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4">https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4</a> and enter the address.
5.03.01 River and Stream Corridor Resources	5.03.01 Why are the tree in the cross section drawn such that base of tree is below ground surface? The display is a cross section, not a perspective diagram. The diagram is located at <a href="https://loudouncoalition.org/wp-content/uploads/2022/01/2022-01-05-Static-Maps-and-Graphics.pdf">https://loudouncoalition.org/wp-content/uploads/2022/01/2022-01-05-Static-Maps-and-Graphics.pdf</a>
5.03.01 River and Stream Corridor Resources	5.03.01 Why is there no buffer around the Beaverdam Reservoir in defining the RSCR Management Area? It is noted that Beaverdam Reservoir is included and buffered in the Reservoir Protection Area map per WebLogis.
5.03.01 River and Stream Corridor Resources	5.03.01 Why is there no buffer around the Milestone Reservoir (former Luckstone quarry) in defining the RSCR Management Area?
5.03.01 River and Stream Corridor Resources	5.03.01 Why is there no mention of Landfill Water Supply Overlay District? Please consider re-establishing this District.

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT																								
5.03.01 River and Stream Corridor Resources	5.03.01 Can a calculation of the number of miles of perennial streams and total length of streams within the 100-year floodplain down to drainage area of 100 acres be made? Our rough ballpark estimate is that there may several tens of miles of perennial stream which drain less than 100 acres (minor floodplain minimum).																								
5.03.01 River and Stream Corridor Resources	5.03.01 How does the number of stream miles (i.e., the extent of applicability) in the RSCR compare with the Chesapeake Bay Preservation Act which is protective of all perennial streams?																								
5.03.01 River and Stream Corridor Resources	5.03.01 How will the new RSCR interface with the legacy Town of Leesburg Creek Valley Buffer ordinance, specifically along Tuscarora Creek which is split along town boundaries? <a href="https://www.leesburgva.gov/home/showdocument?id=4536">https://www.leesburgva.gov/home/showdocument?id=4536</a>																								
5.03.01 River and Stream Corridor Resources	5.03.01 Can the 155 Points of perennality as identified in the Loudoun County 2009 Stream Assessment be used to support creation of a field verified map of perennial streams? The report at <a href="https://www.loudoun.gov/DocumentCenter/View/5091/Stream-Assessment--Results-Report">https://www.loudoun.gov/DocumentCenter/View/5091/Stream-Assessment--Results-Report</a> only covered a portion of the County.																								
5.03.01 River and Stream Corridor Resources	<p>5.03.01 What is the estimated the total stream miles in Loudoun County are subject to RSCR? How does this compare to other stream miles? For example:</p> <table border="1" data-bbox="302 808 2032 1224"> <thead> <tr> <th></th> <th>Perennial</th> <th>Intermittent</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>USGS NHD High Resolution (24K)</td> <td>485</td> <td>793</td> <td>1,277</td> </tr> <tr> <td>USGS NHD Medium Resolution (100K)</td> <td>456</td> <td>264</td> <td>721</td> </tr> <tr> <td>Historic Soil Drains (2,400 scale)</td> <td>952</td> <td>4,791</td> <td>5,743</td> </tr> <tr> <td>Perennial drains (CBPO) in 2009</td> <td>1,000</td> <td></td> <td></td> </tr> <tr> <td>Estimate from field perennality (2009)</td> <td>1,500 (not mapped)</td> <td></td> <td></td> </tr> </tbody> </table>		Perennial	Intermittent	Total	USGS NHD High Resolution (24K)	485	793	1,277	USGS NHD Medium Resolution (100K)	456	264	721	Historic Soil Drains (2,400 scale)	952	4,791	5,743	Perennial drains (CBPO) in 2009	1,000			Estimate from field perennality (2009)	1,500 (not mapped)		
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5.03.01 River and Stream Corridor Resources	5.03.01 Re-enactment of RSCOD (2004) is supported by the Loudoun County Comprehensive Watershed Management Plan 2008. The recommendation is "At a minimum, reduce requirements to establish stream buffer from watersheds greater than 640 acres to include all perennial streams." (This recommendation could be achieved with approval and implementation of one of the stream buffer ordinances [Chesapeake Bay Act or RSCOD] currently being considered by the Board.) (From CWMP report item # 23.)																								

Section Ref.	COMMENTS TO ZONING ORDINANCE REWRITE DRAFT TEXT
5.03.01 River and Stream Corridor Resources	5.03.01 Please discuss and compare areas in RSCOD (2004) and RSCR Management Areas (Draft 2022). Using GIS files supplied by Loudoun County Office of Mapping the maps may be viewed at <a href="https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4">https://storymaps.arcgis.com/stories/8be0799afc06431e9261787a2c7179d4</a>
5.03.01 River and Stream Corridor Resources	5.03.01 The performance standards should include a viewshed analysis for proposed developments along the state-designated a Scenic Rivers (Goose and Catoctin Creeks) in following the 2019 Revised Comprehensive Plan Page 3-27 "River typically involves looking at both the view from the resource itself as well as the view towards the resource." The performance standard would expand the scope beyond the 300-foot buffer. Restrictions would require minimization of the visual impact on the scenic rivers.
5.03.01 River and Stream Corridor Resources	5.03.01 The RSCR description should include viewshed analysis and setback requirements along the Scenic Rivers and the Potomac River. The 2019 Revised Comprehensive Plan: "Prepare and implement corridor management plans, including identifying and defining viewsheds for the County's Scenic Rivers in order to protect their natural and scenic quality."
5.03.01 River and Stream Corridor Resources	5.03.01 The RSCR should require that a viewshed analysis be performed as referenced in the 2019 Comprehensive Plan. An example may be seen at <a href="https://earthward.maps.arcgis.com/apps/mapviewer/index.html?webmap=5d158ea1a0ec42a0a6256b5e6a676772">https://earthward.maps.arcgis.com/apps/mapviewer/index.html?webmap=5d158ea1a0ec42a0a6256b5e6a676772</a> Here the observer height is assumed at 6 feet. Range of search was limited to 2 miles. Underlying DEM is 10-meter National Elevation Data from US Geological Survey.
5.03.01 River and Stream Corridor Resources	Table 5.03.01E. The full 500-ft setback is missing. This table is in direct conflict with Board of Supervisors vote on June 1, 2021 to expand the buffer to 500 feet. This is comprised of the 300 foot setback which is shown in the table, but the table fails to include the "approved" 200-foot transitional setback. See <a href="https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/511067/Item%2014%20BMI-Source%20Water%20Protection.pdf">https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/511067/Item%2014%20BMI-Source%20Water%20Protection.pdf</a> and <a href="https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/514023/Item%2014%20BMI%20Source%20Water%20Protection.pdf">https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/514023/Item%2014%20BMI%20Source%20Water%20Protection.pdf</a>
5.03.01 River and Stream Corridor Resources	Table 5.03.01E. This is missing the 200-foot transition setback. The restrictions should be less than the primary 300-foot buffer, but what are the restrictions? Is there a restrictions on grading and clearing within the 200-foot transition? This transition was approved in June 2021. See <a href="https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/511067/Item%2014%20BMI-Source%20Water%20Protection.pdf">https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/511067/Item%2014%20BMI-Source%20Water%20Protection.pdf</a> and <a href="https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/514023/Item%2014%20BMI%20Source%20Water%20Protection.pdf">https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/514023/Item%2014%20BMI%20Source%20Water%20Protection.pdf</a>
4.03.01 FOD Definitions	The minor floodplain is defined as river reaches which drain between 640 acres (1 square miles per FEMA) and 100 acres. The 100 acre limit is too great and should be reduced to 70 acres are is done in Fairfax County. <a href="https://online.encodeplus.com/regs/fairfaxcounty-va/doc-viewer.aspx#secid-251">https://online.encodeplus.com/regs/fairfaxcounty-va/doc-viewer.aspx#secid-251</a>