



COUNTY OF FLUVANNA

"Responsive & Responsible Government"

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February 1, 2012

Mr. David Johnson, Director
Department of Conservation and Recreation
203 Governor Street
Richmond, VA 23219-2010

Re: Phase II Watershed Implementation Plan Local Data and Information Submission

Dear Mr. Johnson,

In response to your letter dated November 9, 2011, Fluvanna County is pleased to submit the requested information to assist the Department of Conservation and Recreation (DCR) in preparing Virginia's Phase II Watershed Implementation Plan (WIP) for the Chesapeake Bay Total Maximum Daily Load (TMDL).

Fluvanna County is committed to supporting the Bay TMDL planning process and welcomes the opportunity to provide more specific and local information and to outline County-level activities, should there be sufficient resources. The information provided by this letter to you and your staff via the Virginia Assessment Scenario Tool (VAST) and Strategies/Resources Template in Microsoft Excel supports DCR's preparation for the Virginia Phase II WIP. In addition, it demonstrates Fluvanna County's current understanding of the Bay TMDL and Phase II WIP and outlines roles and responsibilities in implementation. This submission supports Virginia's demonstration of "reasonable assurance," as required by U.S. Environmental Protection Agency (EPA).

Scenarios and strategies submitted at this time may change substantially as part of Fluvanna County's need to adaptively manage this and other planning processes. Consideration of factors the County finds relevant including cost estimates, new technical information, and new or enhanced technologies may adjust scenarios and strategies in the future.

Overview of Fluvanna County, Virginia

Fluvanna County is comprised of 282 square miles in the Piedmont physiographic province. According to the 2010 census, there are 25,691 residents. The Rivanna River, which bisects the county, is a major tributary of the James River and drains 51.7% of the county. The remaining land drains directly to the James River via the Hardware River and Byrd Creek. The Hardware River Wildlife Management Area is located on Hardware Road (Route 646) in the southwest

portion of the county. None of the land is under MS4 permit (i.e., “pervious or impervious-permitted” as per Bay Model land use terminology).

Fluvanna County’s vision, as articulated in its most recent comprehensive plan, emphasizes that land use is recognized as directly related to the quality of life. Fluvanna County strives to ensure that natural resources are protected, and its rivers are clean and full of life. The land’s relationship to the availability of clean and adequate water supplies, clean air, and successful agricultural and forestry production are just a few of the factors routinely considered in planning decisions. Other land-use planning decisions include the direction of residential and commercial/industrial growth to community planning areas that have public facilities and adequate infrastructure. The vision includes establishing areas of service for water and sewer within the Fork Union, Palmyra, Zion Crossroads, and other community planning areas. These water and sewer systems could be designed, maintained, and operated to minimize negative impacts on local streams, rivers, and groundwater. Similarly, the continued protection of the Rivanna River, a state scenic river, is a community priority. Zoning and subdivision regulations provide for the preservation of a significant amount of open space, particularly within designated rural residential and rural preservation areas.

(Fluvanna County 2010 Comprehensive Plan)

In addition, Fluvanna County, part of PD-10, benefits from recommendations provided in the Green Infrastructure Plan for PD-10 (2010, TJPDC); and University of Virginia’s Environmental Law Clinic found in *Reducing Runoff from Stormwater* (RCS and UVa, 2010); and recommendations from the Rivanna River Basin Commission’s *Menu of Stormwater Best Management Practices* (2008).

In addition, two supervisors and one appointed citizen from Fluvanna County have served on the Rivanna River Basin Commission since its inception in 2007, and planning and environmental inspection staff persons serve on its Technical Advisory Committee.

Fluvanna County’s Phase II WIP Information Development Process

Fluvanna County has stayed current with the federal and state aspects of the Chesapeake Bay TMDL through its participation on the Rivanna River Basin Commission and from meetings with state representatives hosted by the Thomas Jefferson Planning District Commission (TJPDC). Fluvanna County also participated in the Piedmont Regional Pilot Project with TJPDC, RRBC, and the Thomas Jefferson SWCD (which serves Fluvanna County). County staff attended the VAST training held at TJPDC on October 28, 2011.

Since November 2011, Fluvanna County staff has, with support from the Rivanna River Basin Commission, Thomas Jefferson SWCD and Fluvanna VCE, gathered data and developed the input requested by DCR. On February 1, 2012, a presentation was made to the Board of Supervisors about the extent and nature of this submission, which is being forwarded administratively. Please note that while the information contained herein and submitted via VAST is offered in response to DCR’s request, the details of this submission have not been explicitly reviewed and endorsed by the Board.

Fluvanna County received assistance in developing the data, interpreting the data requests, the Chesapeake Bay Model, and the VAST tool, by the Rivanna River Basin Commission (funded through a NFWF grant to the TJPDC and RRBC), with additional support from the Thomas Jefferson SWCD and the Fluvanna VCE. With assistance from these organizations, we were able to provide the current level of information in the limited time allotted.

WIP Element #1 - BMP Inventory (2009 Progress BMPs) & Implementation progress

Fluvanna County appreciates the opportunity to update the Bay model to include all existing BMPs, understanding that our participation in providing the best available data will contribute to an important “refinement” of the Bay model. Fluvanna County is in the process of developing a database of all BMPs on public and private lands in the county; however, because this effort has only recently commenced, our input should be considered a reasonable estimate based on the best professional judgment of our staff. Our review of the data included analysis and comparison to available records by the Thomas Jefferson SWCD and Fluvanna VCE. Thus the BMP inventory submitted through VAST, and included as Attachment 1, is accurate to the greatest extent possible at this time.

Please also note the following:

Lacking comprehensive data from the Virginia Department of Health (VDH) or any other sources, Fluvanna County could only estimate the number of septic systems based on subtracting the households connected to public sewer from the total number of households in the 2010 census.

Fluvanna’s Lake Monticello, which drains into the Rivanna River, could be considered a sizeable and, under many conditions, an effective BMP for sediment and nutrient reductions. We understand that the Bay Model takes into consideration large impoundments such as Lake Monticello, and we also request that accounting for large impoundments such as Lake Monticello be clearly defined by DCR and its partners.

Fluvanna County will be interested in providing further BMP inventory updates in the future and specifically requests guidance from DCR of how and when this should happen, with sufficient lead-time, so that the most accurate inventory can be used in developing Bay Model 6.0 in 2017.

Since Fluvanna County has documented 1,650 linear feet of urban streams that have been restored, we wish to be assured that credit for this BMP be allocated as soon as the new efficiency rating has been finalized.

WIP Element #2 – Land Use / Land Cover Corrections

Fluvanna County appreciates the opportunity to provide DCR with more accurate land cover data so that the Bay model can be improved to better reflect land use and pollutant loads at the local scale. Supported by RRBC, Thomas Jefferson SWCD and local landowners, we reviewed the

land use/land cover data for Fluvanna County. We utilized a high-resolution (one foot) land cover map based on 2009 aerial photography (*Rivanna Watershed and Vicinity Land Use/Land Cover Map*, 2009). The GIS based tool identifies impervious and hydrologic features, deciduous and evergreen tree cover, open land, pine plantation, forest harvest, orchard/vineyard, bare earth, and golf courses. We also consulted with Virginia Cooperative Extension, Virginia Department of Forestry (VDOP), and Virginia Department of Mines, Minerals and Energy. Please note the following, in addition to the comments provided through VAST (Fluvanna County: Progress BMPs) and included as Attachment 2:

1. While the *Rivanna Watershed and Vicinity Land Use/Land Cover Map* served as an excellent data source to describe land covers (especially impervious surfaces), there was not have enough time or resources to resolve discrepancies between this map and output from the Bay Model.
2. Lacking comprehensive data from the Virginia Department of Health (VDH) or any other sources, Fluvanna County could only estimate the number of septic systems based on subtracting the households connected to public sewer from the total number of households in the 2010 census.
3. Though our analysis did not reveal any major discrepancies between 5.3.2. Model and our own data, we note that the lack of consistent datasets across the Bay watershed and Commonwealth have substantially complicated what should be a fairly simple process, and we urge the Commonwealth to work with its Bay partners to obtain and maintain high-resolution land cover/land use data that support localities in planning and implementing BMPs and land protection in the future. One discrepancy discovered was related to the “nursery” land use, whose value in the Bay Model was 80 acres; in actuality, Fluvanna has zero acres of this land use.

WIP Element #3 – BMP Scenario (vs Default 2025 Phase I WIP Scenario)

It is unclear that this BMP Scenario “achieves a similar level of effort” as determined by DCR, since the criteria have not been made explicitly clear. Fluvanna County’s 2025 scenario provides a different mix of BMPs than the default WIP I scenario based on input from staff and other stakeholders. This scenario should only be considered “preferred” in the sense that it is based on more accurate local land use data and more closely reflects current trends and practices in the County.

Thus, the 2025 scenario was developed as a reasonable submission, though not reflective of a detailed planning process informed by sound and accurate data and conducted over time with adequate input by stakeholders, citizens, source sectors, and elected officials. In addition, Fluvanna County does not have authority over many of the sources contributing to the overall pollution loads allocated in this exercise to the County.

While Fluvanna County chooses to make a BMP scenario submittal, the submittal is simply a demonstration of what seems to be a technically viable way based on limited information of how

targets might be met. This scenario has not been selected or adopted by Fluvanna County at this time; it is simply a technical analysis of one theoretical option that may not be viable for a variety of reasons. Our submittal is not a plan or commitment. We reserve the right to change these BMP targets at any point in the future at the sole discretion of Fluvanna County.

With respect to the 2025 Scenario submitted via VAST (Fluvanna County: Revised 2025 Scenario) and included as Attachment 3, please note the following:

- The Chesapeake Bay Model default for stream restoration is in excess of the number of stream miles in “open land,” and thus available for this BMP. In other words, the opportunity to apply this BMP is overstated by the model.
- We have applied our update to the 2009 Progress BMP as part of developing the 2025 scenario.

WIP Elements #4 and #5 – Implementation Strategies/Resource Needs for BMP Scenarios

Fluvanna County offers the collection of BMP implementation strategies and resource needs (Attachment 4) based solely on planning work done to date via its most recent comprehensive plan update (2009) and input from its planning partners through various studies and reports, including:

- *Menu of Stormwater BMPs*, RRBC via letter recommendation in January 2009.
- *Reducing Runoff Report*, Rivanna Conservation Society and UVa’s Environmental Law Clinic (2010)
- *Green Infrastructure Plan for PD-10*, TJPDC (2010)
- *Opportunities for Stormwater Retrofit on Public Lands In Fluvanna County*, Center for Watershed Protection (2010)

In addition, we cite several of the strategies proposed in Virginia’s Draft WIP II as possible strategies to consider in the future.

Strategies submitted are those that Fluvanna County *may* consider, evaluate, or explore in the future. Submission of these strategies does not commit the County to implementation and any progress will be based on resources, political will, economic conditions, and regulatory requirements.

Fluvanna County has concern about the magnitude of the cost estimates catalogued in the November 2011 report of the Virginia Senate Finance Committee and stresses the importance of federal and state financial support for WIP implementation.

In closing, Fluvanna County appreciates the opportunity to submit this information to DCR, but we also reserve the right to reconsider and amend any of the above information in any future regulatory proceeding such as compliance under any permitted activities.

Sincerely,

A handwritten signature in black ink that reads "Darren K. Coffey". The signature is written in a cursive style with a large initial 'D'.

Darren Coffey
Fluvanna County Administrator (Interim) and Planning Director

Attachments:

1. WIP Element #1 - BMP Inventory (2009 Progress BMPs) & Implementation progress
2. WIP Element #2 – Land Use / Land Cover Corrections
3. WIP Element #3 – BMP Scenarios (2025 Phase I WIP)
4. WIP Elements #4 and #5 – Implementation Strategies/Resource Needs for BMP Scenarios

WIP Element #1 - BMP Inventory

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Forest Buffers	alfalfa	0.54	0.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Grass Buffers; Vegetated Open Channel - Agriculture	alfalfa	0.57	0.31	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Land Retirement to hay without nutrients (HEL)	alfalfa	2.39	1.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Nutrient Management	alfalfa	32.46	17.68	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	alfalfa	25.30	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Tree Planting	alfalfa	2.39	1.30	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Stream Access Control with Fencing	degraded riparian pasture	165.56	24.34	Revised by TJSWCD, 12/21/12; stream fencing seems accurate based on SWCD's numbers.
Streamside Grass Buffers	degraded riparian pasture	151.66	29.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Forest Harvesting Practices	harvested forest	1,452.40	100.00	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Forest Buffers	hay with nutrients	29.64	0.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Grass Buffers; Vegetated Open Channel - Agriculture	hay with nutrients	31.44	0.31	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Land Retirement to hay without nutrients (HEL)	hay with nutrients	131.44	1.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Nutrient Management	hay with nutrients	1,783.56	17.68	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	hay with nutrients	1,390.16	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Tree Planting	hay with nutrients	131.43	1.30	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Forest Buffers	hay without nutrients	5.33	0.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	hay without nutrients	356.79	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Streamside Forest Buffers	hay without nutrients	171.78	9.12	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Tree Planting	hay without nutrients	28.07	1.30	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Commodity Cover Crop Early Other Wheat	hightill with manure	4.23	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.

WIP Element #1 - BMP Inventory

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Conservation Tillage	hightill with manure	1,415.55	56.43	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Cover Crop Standard Other Wheat	hightill with manure	4.23	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Forest Buffers	hightill with manure	7.33	0.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Grass Buffers; Vegetated Open Channel - Agriculture	hightill with manure	7.79	0.31	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Land Retirement to hay without nutrients (HEL)	hightill with manure	32.58	1.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Nutrient Management	hightill with manure	193.24	17.68	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	hightill with manure	150.61	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Tree Planting	hightill with manure	32.68	1.30	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Commodity Cover Crop Early Other Wheat	hightill without manure	1.27	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Cover Crop Standard Other Wheat	hightill without manure	1.27	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Forest Buffers	hightill without manure	0.96	0.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Grass Buffers; Vegetated Open Channel - Agriculture	hightill without manure	1.02	0.31	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Land Retirement to hay without nutrients (HEL)	hightill without manure	4.27	1.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Nutrient Management	hightill without manure	57.95	17.68	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	hightill without manure	45.16	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Tree Planting	hightill without manure	4.27	1.30	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Commodity Cover Crop Early Other Wheat	lowtill with manure	5.48	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Continuous No Till - CBP	lowtill with manure	0.12	0.01	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Cover Crop Standard Other Wheat	lowtill with manure	5.48	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Nutrient Management	lowtill with manure	250.27	17.68	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.

WIP Element #1 - BMP Inventory

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Soil Conservation and Water Quality Plans	lowtill with manure	195.07	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Abandoned Mine Reclamation	nonregulated extractive	5.78	100.00	No change from default.
Dry Detention Ponds and Hydrodynamic Structures	nonregulated impervious developed	84.11	3.20	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. No update has been made to default amount.
Dry Extended Detention Ponds	nonregulated impervious developed	18.92	0.72	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. No update has been made to default amount.
Urban Filtering Practices	nonregulated impervious developed	1.31	0.05	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
Wet Ponds and Wetlands	nonregulated impervious developed	47.05	1.79	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. No update has been made to default amount. No update has been made to default amount. Lake Monticello treats an additional 405 acres of impervious area; however accounting for large impoundments has not yet been clearly defined.
Dry Detention Ponds and Hydrodynamic Structures	nonregulated pervious developed	206.02	3.20	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. No update has been made to default amount.
Dry Extended Detention Ponds	nonregulated pervious developed	46.35	0.72	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. No update has been made to default amount.
Urban Filtering Practices	nonregulated pervious developed	3.22	0.05	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. No update has been made to default amount.
Urban Stream Restoration Or Regenerative Stormwater Conveyance	nonregulated pervious developed	1650 Feet	1650 Feet	Fluvanna County has 1,650 feet of urban stream restoration (2012).
Wet Ponds and Wetlands	nonregulated pervious developed	115.24	1.79	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. No update has been made to default amount. No update has been made to default amount. Lake Monticello treats an additional 2,032 acres of pervious area; however accounting for large impoundments has not yet been clearly defined.
Soil Conservation and Water Quality Plans	nutrient management alfalfa	5.43	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.

WIP Element #1 - BMP Inventory

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Soil Conservation and Water Quality Plans	nutrient management hay with nutrients	298.57	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Commodity Cover Crop Early Other Wheat	nutrient management hightill with manure	0.91	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Cover Crop Standard Other Wheat	nutrient management hightill with manure	0.91	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	nutrient management hightill with manure	32.35	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Commodity Cover Crop Early Other Wheat	nutrient management hightill without manure	0.27	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Cover Crop Standard Other Wheat	nutrient management hightill without manure	0.27	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	nutrient management hightill without manure	9.70	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Commodity Cover Crop Early Other Wheat	nutrient management lowtill with manure	1.18	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Cover Crop Standard Other Wheat	nutrient management lowtill with manure	1.18	0.47	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	nutrient management lowtill with manure	41.90	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Off Stream Watering Without Fencing	nutrient management pasture	67.05	3.03	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Prescribed Grazing	nutrient management pasture	765.85	34.61	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.

WIP Element #1 - BMP Inventory

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Soil Conservation and Water Quality Plans	nutrient management pasture	370.42	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Forest Buffers	pasture	37.48	0.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Grass Buffers; Vegetated Open Channel - Agriculture	pasture	39.43	0.31	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Land Retirement to hay without nutrients (HEL)	pasture	166.23	1.29	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Non Urban Stream Restoration	pasture	880 Feet	880 Feet	880 feet of non-urban stream have been restored (2012).
Nutrient Management	pasture	2,212.79	17.68	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Off Stream Watering Without Fencing	pasture	312.18	3.03	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Prescribed Grazing	pasture	3,565.87	34.61	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Soil Conservation and Water Quality Plans	pasture	1,724.72	16.74	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Tree Planting	pasture	164.85	1.30	Agriculture BMPs reviewed by Virginia Cooperative Extension; no update has been made to default amount.
Erosion and Sediment Control	regulated construction	281.41	97.00	Fluvanna County has an E&S rate of 97% (2012)
Septic Connection	septic	3,056.20	33.50	Fluvanna County has approximately 6,067 septic systems as of January 2012, based on the total amount of housing units from the 2010 U.S. Census data minus the number of homes on public sewer lines. Refer to the Health Department for more information.
Septic Pumping	septic	0.00	0.00	Pumpouts are occurring however, Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. Please refer to Health Department for further information.
Septic Denitrification	septic	0.00	0.00	Fluvanna County has not had sufficient time and resources to provide a more accurate BMP amount than zero. No update has been made to default amount. <i>Zero cannot be entered into VAST for this BMP.</i>

WIP Element #1 - BMP Inventory

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Forest Harvesting Practices	forest	1,452.40	100.00	Check with Virginia Dept of Forestry. Fluvanna County has 1,703 acres of forest harvest according to Virginia Department of Forestry's 2009 Forest Harvest Data in Integrated Forest Resource Information System (IFRIS).

ATTACHMENT 2

**FLUVANNA COUNTY
WIP Element #2 - Land Use / Land Cover**

Land Use	Land Use in Bay Model (Acres Unless Otherwise	Updated Land Use Submitted to DCR (Acres Unless	Comments Submitted to DCR
alfalfa	186.00	186.00	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
animal feeding operations	86.60	86.60	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
concentrated animal feeding operations	5.20	5.20	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate. See DEQ permit VPG260021 for more information.
forest	143,787.90	131,182.00	Fluvanna County estimates 131,182 acres of forest according to Fluvanna County's 2009 Comprehensive Plan. This number is similar to the number provided by the Virginia Department of Forestry.
harvested forest	1,452.40	1,703.00	Fluvanna County has 1,703 acres of forest harvest according to Virginia Department of Forestry's 2009 Forest Harvest Data in Integrated Forest Resource Information System (IFRIS).
hay with nutrients	10,219.00	10,219.00	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
hay without nutrients	1,718.00	1,718.00	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
hi-till with manure	2,526.00	2,526.00	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
hi-till without manure	332.00	332.00	Fluvanna County has had insufficient time and resources to determine a more accurate estimate.
nonregulated extractive	5.80	2.90	DMM Permit number 10403AB is permitted for 2.9 acres of which all is under "temporary cessation". (Based on RRBC conversation with Tom Bibb, VMME, 1/11/12)

ATTACHMENT 2

**FLUVANNA COUNTY
WIP Element #2 - Land Use / Land Cover**

nonregulated impervious developed	2,628.30	2,628.30	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
nonregulated pervious developed	6,438.00	6,438.00	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate.
nursery	80.00	0.00	Fluvanna County has 0 acres of nursery in November 2011. <i>Per Virginia Department of Conservation & Recreation, this line-item will not be entered into VAST to reflect zero acres of this land use (based on email from James Davis-Martin to Jessica Lassetter 1/12/12).</i>
pasture	12,923.80	12,923.80	Fluvanna County has not had sufficient time and resources to determine a more accurate estimate though the model number may be high. Since 2009 however, at least 500 of that has been converted to another land use. (email to Leslie Middleton from John G. Thompson, Extension Agent ANR, Virginia Cooperative Extension, Fluvanna County, 1/19/12)
regulated construction	290.10	100.00	On average, over the past six years, Fluvanna County has approximately 100 acres under construction.
septic	9,123.00	6,067.00	Fluvanna County has approximately 6,067 septic systems as of January 2012, based on the total amount of housing units from the 2010 U.S. Census data minus the number of homes on public sewer lines. VDH records do not facilitate developing accurate totals.

ATTACHMENT 3

**FLUVANNA COUNTY
WIP Element #3 - Preferred BMP Scenario**

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Abandoned Mine Reclamation	nonregulated extractive	5.78	100.00	No change from default.
Barnyard Runoff Control	animal feeding operations	86.63	100.00	No change from default.
Bioretention/raingardens	nonregulated impervious developed	0.00	0.00	No change from default.
Bioretention/raingardens	nonregulated pervious developed	0.00	0.00	No change from default.
Bioswale	nonregulated impervious developed	0.00	0.00	No change from default.
Bioswale	nonregulated pervious developed	0.00	0.00	No change from default.
Irrigation Water Capture Reuse	nursery	76.00	95.00	No change from default.
Commodity Cover Crop Early Drilled Wheat	hightill with manure	1.49	11.67	No change from default.
Commodity Cover Crop Early Drilled Wheat	hightill without manure	1.89	11.67	No change from default.
Commodity Cover Crop Early Drilled Wheat	lowtill with manure	13.39	11.67	No change from default.
Commodity Cover Crop Early Drilled Wheat	nutrient management hightill with manure	25.66	11.67	No change from default.
Commodity Cover Crop Early Drilled Wheat	nutrient management hightill without manure	32.56	11.67	No change from default.
Commodity Cover Crop Early Drilled Wheat	nutrient management lowtill with manure	230.90	11.67	No change from default.
Soil Conservation and Water Quality Plans	alfalfa	6.74	74.40	No change from default.
Soil Conservation and Water Quality Plans	hay with nutrients	370.39	74.40	No change from default.

ATTACHMENT 3

**FLUVANNA COUNTY
WIP Element #3 - Preferred BMP Scenario**

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Soil Conservation and Water Quality Plans	hay without nutrients	2,540.60	74.40	No change from default.
Soil Conservation and Water Quality Plans	hightill with manure	9.48	74.40	No change from default.
Soil Conservation and Water Quality Plans	hightill without manure	12.03	74.40	No change from default.
Soil Conservation and Water Quality Plans	lowtill with manure	85.35	74.40	No change from default.
Soil Conservation and Water Quality Plans	nutrient management alfalfa	116.28	74.40	No change from default.
Soil Conservation and Water Quality Plans	nutrient management hay with nutrients	6,388.47	74.40	No change from default.
Soil Conservation and Water Quality Plans	nutrient management hightill with manure	163.56	74.40	No change from default.
Soil Conservation and Water Quality Plans	nutrient management hightill without manure	207.55	74.40	No change from default.
Soil Conservation and Water Quality Plans	nutrient management lowtill with manure	1,472.08	74.40	No change from default.
Soil Conservation and Water Quality Plans	nutrient management pasture	762.93	74.40	No change from default.
Soil Conservation and Water Quality Plans	pasture	7,431.85	74.40	No change from default.
Conservation Tillage	hightill with manure	2,093.32	90.00	No change from default.
Cover Crop Early Drilled Wheat	hightill with manure	2.01	15.76	No change from default.
Cover Crop Early Drilled Wheat	hightill without manure	2.55	15.76	No change from default.
Cover Crop Early Drilled Wheat	lowtill with manure	18.08	15.76	No change from default.
Cover Crop Early Drilled Wheat	nutrient management hightill with manure	34.65	15.76	No change from default.

ATTACHMENT 3

**FLUVANNA COUNTY
WIP Element #3 - Preferred BMP Scenario**

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Cover Crop Early Drilled Wheat	nutrient management hightill without manure	43.97	15.76	No change from default.
Cover Crop Early Drilled Wheat	nutrient management lowtill with manure	311.83	15.76	No change from default.
Cover Crop Standard Drilled Wheat	hightill with manure	1.01	7.89	No change from default.
Cover Crop Standard Drilled Wheat	hightill without manure	1.28	7.89	No change from default.
Cover Crop Standard Drilled Wheat	lowtill with manure	9.05	7.89	No change from default.
Cover Crop Standard Drilled Wheat	nutrient management hightill with manure	17.35	7.89	No change from default.
Cover Crop Standard Drilled Wheat	nutrient management hightill without manure	22.01	7.89	No change from default.
Cover Crop Standard Drilled Wheat	nutrient management lowtill with manure	156.11	7.89	No change from default.
Decision Agriculture	alfalfa	12.58	7.61	No change from default.
Decision Agriculture	hay with nutrients	691.33	7.61	No change from default.
Decision Agriculture	hightill with manure	17.70	7.61	No change from default.
Decision Agriculture	hightill without manure	22.46	7.61	No change from default.
Decision Agriculture	lowtill with manure	159.30	7.61	No change from default.
Dry Detention Ponds and Hydrodynamic Structures	nonregulated impervious developed	104.30	4.29	No change from default.
Dry Detention Ponds and Hydrodynamic Structures	nonregulated pervious developed	281.44	4.29	No change from default.
Erosion and Sediment Control	regulated construction	290.11	100.00	No change from default.
Enhanced Nutrient Management	alfalfa	128.31	77.60	No change from default.
Enhanced Nutrient Management	hay with nutrients	7,049.55	77.60	No change from default.
Enhanced Nutrient Management	hightill with manure	180.49	77.60	No change from default.

ATTACHMENT 3

**FLUVANNA COUNTY
WIP Element #3 - Preferred BMP Scenario**

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Enhanced Nutrient Management	hightill without manure	229.03	77.60	No change from default.
Enhanced Nutrient Management	lowtill with manure	1,624.41	77.60	No change from default.
Dry Extended Detention Ponds	nonregulated impervious developed	213.70	8.79	No change from default.
Dry Extended Detention Ponds	nonregulated pervious developed	576.65	8.79	No change from default.
Urban Filtering Practices	nonregulated impervious developed	99.68	4.10	No change from default.
				No change from default.
Urban Filtering Practices	nonregulated pervious developed	268.97	4.10	No change from default.
				No change from default.
Forest Buffers	hay without nutrients	57.90	2.76	No change from default.
Forest Buffers	alfalfa	5.13	2.76	No change from default.
Forest Buffers	hay with nutrients	282.04	2.76	No change from default.
Forest Buffers	hightill with manure	69.72	2.76	No change from default.
Forest Buffers	hightill without manure	9.16	2.76	No change from default.
Forest Buffers	pasture	356.70	2.76	No change from default.
Streamside Forest Buffers	hay without nutrients	262.64	13.42	No change from default.
Urban Forest Buffers	nonregulated pervious developed	23.22	0.35	Assuming cost-effectiveness and availability of funding, plan to install 75 foot buffer along streams (75'*2.5 mi=22.7 ac/2628.3 ac).
Forest Harvesting Practices	harvested forest	1,452.40	100.00	Increase rate from 95% to 100% by 2025 to achieve reductions in forest sector.
Grass Buffers; Vegetated Open Channel - Agriculture	alfalfa	6.05	3.43	No change from default.
Grass Buffers; Vegetated Open Channel - Agriculture	hay with nutrients	332.14	3.43	No change from default.
Grass Buffers; Vegetated Open Channel - Agriculture	hightill with manure	82.49	3.43	No change from default.

ATTACHMENT 3

**FLUVANNA COUNTY
WIP Element #3 - Preferred BMP Scenario**

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Grass Buffers; Vegetated Open Channel - Agriculture	hightill without manure	10.79	3.43	No change from default.
Grass Buffers; Vegetated Open Channel - Agriculture	pasture	413.24	3.43	No change from default.
Streamside Grass Buffers	degraded riparian pasture	407.10	92.29	No change from default.
Impervious Urban Surface Reduction	nonregulated impervious developed	197.12	7.50	No change from default.
Urban Infiltration Practices - no sand\veg no underdrain	nonregulated impervious developed	0.00	0.00	Fluvanna County soils do not support infiltration BMPs without an underdrain. Reduced the use of BMP from 4.6% to 0%.
Urban Infiltration Practices - no sand\veg no underdrain	nonregulated pervious developed	0.00	0.00	Fluvanna County soils do not support infiltration BMPs without an underdrain. Reduced the use of BMP from 4.6% to 0%.
Urban Infiltration Practices - with sandveg no underdrain	nonregulated impervious developed	0.00	0.00	No change from default.
Urban Infiltration Practices - with sandveg no underdrain	nonregulated pervious developed	0.00	0.00	No change from default.
Land Retirement to hay without nutrients (HEL)	alfalfa	7.09	3.93	No change from default.
Land Retirement to hay without nutrients (HEL)	hay with nutrients	389.70	3.93	No change from default.
Land Retirement to hay without nutrients (HEL)	hightill with manure	96.78	3.93	No change from default.
Land Retirement to hay without nutrients (HEL)	hightill without manure	12.66	3.93	No change from default.
Land Retirement to hay without nutrients (HEL)	pasture	492.85	3.93	No change from default.
Non Urban Stream Restoration	degraded riparian pasture	1112.11 feet	1112.11 feet	No change from default.
Nutrient Management	alfalfa	15.39	9.31	No change from default.
Nutrient Management	hay with nutrients	845.76	9.31	No change from default.
Nutrient Management	hightill with manure	21.65	9.31	No change from default.
Nutrient Management	hightill without manure	27.48	9.31	No change from default.

ATTACHMENT 3

**FLUVANNA COUNTY
WIP Element #3 - Preferred BMP Scenario**

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Nutrient Management	lowtill with manure	194.89	9.31	No change from default.
Nutrient Management	pasture	1,025.45	9.31	No change from default.
Stream Access Control with Fencing	degraded riparian pasture	239.09	35.15	No change from default.
Permeable Pavement - with sandveg with underdrain with AB soils	nonregulated pervious developed	25.59	0.39	Assuming cost-effectiveness and availability of funding, plan to treat 11 acres of pervious urban developed land with permeable pavers with underdrain.
Permeable Pavement - with sandveg with underdrain with AB soils	nonregulated impervious developed	11.43	0.47	Assuming cost-effectiveness and availability of funding, plan to treat 25 acres of impervious urban developed land with permeable pavers with underdrain.
Prescribed Grazing	nutrient management pasture	623.47	60.80	No change from default.
Prescribed Grazing	pasture	6,073.34	60.80	No change from default.
Street Sweeping Mechanical Monthly	nonregulated impervious developed	0.00	0.00	No change from default.
Tree Planting	alfalfa	9.07	5.33	No change from default.
Tree Planting	hay with nutrients	498.43	5.33	No change from default.
Tree Planting	hay without nutrients	192.26	5.33	No change from default.
Tree Planting	hightill with manure	127.62	5.33	No change from default.
Tree Planting	hightill without manure	16.19	5.33	No change from default.
Tree Planting	pasture	620.13	5.33	No change from default.
Urban Nutrient Management	nonregulated pervious developed	5,641.88	86.00	Assuming cost-effectiveness and availability of funding, apply BMP to 86% of pervious developed land (increase in 2.8% over WIP I Scenario).
Urban Tree Planting; Urban Tree Canopy	nonregulated pervious developed	51.57	0.78	Assuming cost-effectiveness, sources of funding, and available land plant 50 acres with trees through a tree planting program.
Urban Grass Buffers	nonregulated pervious developed	0.00	0.00	No change from default.

ATTACHMENT 3

**FLUVANNA COUNTY
WIP Element #3 - Preferred BMP Scenario**

BMP Name	Landuse	Acres of BMP Applied to Land Use (unless otherwise noted)	% BMP Applied to Land Use (unless otherwise noted)	Comments
Urban Stream Restoration (interim)	nonregulated pervious developed	2000 feet	2000 feet	Assuming cost-effectiveness and availability of funding, increase amount of urban stream restoration to 2,000 ft by 2025. Fluvanna County has 1,650 feet of urban stream restoration as of 2012.
Vegetated Open Channel - Urban	nonregulated impervious developed	170.18	7.00	Assuming cost-effectiveness and availability of funding, treat 170 impervious acres with this BMP.
Vegetated Open Channel - Urban	nonregulated pervious developed	459.22	7.00	Assuming cost-effectiveness and availability of funding, treat 450 pervious acres with this BMP.
Wetland Restoration	alfalfa	0.38	0.21	No change from default.
Wetland Restoration	hay with nutrients	20.87	0.21	No change from default.
Wetland Restoration	hay without nutrients	4.29	0.21	No change from default.
Wetland Restoration	hightill with manure	5.18	0.21	No change from default.
Wetland Restoration	hightill without manure	0.68	0.21	No change from default.
Wetland Restoration	pasture	26.39	0.21	No change from default.
Wet Ponds and Wetlands	nonregulated impervious developed	291.74	12.00	Assuming cost-effectiveness and availability of funding, treat 290 impervious acres with this BMP.
Wet Ponds and Wetlands	nonregulated pervious developed	787.24	12.00	Assuming cost-effectiveness and availability of funding, treat 785 pervious acres with this BMP.
Septic Connection	SepticConnect	3120.07 Systems	34.20	Current septic systems (6,067) + estimated connections (100) divided by model number of systems (9,123) for actual loading.
Septic Denitrification	SepticDenitrify	30.01 Systems	0.50	Decrease estimated amount of denitrification systems installed from 20.4% to 0.5% due to high cost of installation at present time.
Septic Pumping	SepticPump	1200.59 Systems	20.00	Encourage home owners to pump system once every five years for a rate of 20%.

Virginia Phase II WIP Strategies Document

Introduction

EPA is requesting that states develop a Phase II Watershed Implementation Plan (WIP) that further articulates the Phase I WIP strategies employed locally to meet local implementation scenario for 2025. As Virginia and local stakeholders move forward in Phase II this document has been developed to provide examples of acceptable strategies for BMP implementation and capacity building efforts that may be considered for submission by localities. The strategies presented in this document are examples, not requirements, and provide a format for building and submitting local Phase II strategies. Localities, PDCs and SWCDs will meet submission requests for revised or enhanced BMP data and scenarios through the Virginia Assessment and Scenario Tool (VAST). Strategies and resources, like the examples provided, will be submitted through the DCR local engagement team staff using this formatted spreadsheet. While scenarios and strategies will not be shared with EPA on a locality-by-locality basis, it is important that they are provided to DCR in order to develop a Phase II plan showing local involvement and input.

The table below provides a format for selecting the "Type" of strategy being developed, "Implementation", "Capacity" building, or "New BMP", the "Source" sector this BMP strategy can be applied on, the "BMP", and a field for entering the "Strategy" for implementing the BMP. The final column is for entering "Resource Needs" to successfully implement the proposed strategy. There is a drop down menu in each cell except for "Strategy" and "Resource Needs". Please select the appropriate item in each cell and then enter in a brief sentence describing the "Strategy" and "Resources needed". A couple of examples have been entered in the green shaded cells below.

Strategy and Resources Reporting Template				
STRATEGY TYPE	SOURCE	BMP	STRATEGY	RESOURCE NEEDS
BMP Implementation	Agriculture	Multiple	Encourage the use of BMPs, particularly those recommended by the Rivanna River Basin Commission, to reduce non-point source pollution from development, farming, and other sources. <u>Reference:</u> 2009 Comprehensive Plan (<i>Natural Environment Chapter</i>)	Staffing Needs, Funding, Technical Assistance (Extension, DCR)
Capacity Building	Construction	Erosion and Sediment Control	Evaluate the staffing needed to effectively enforce compliance to stormwater management and erosion and sediment control ordinances to more effectively address quality and quantity of water runoff. <u>Reference:</u> 2009 Comprehensive Plan (<i>Natural Environment Chapter</i>)	Staffing Needs
BMP Implementation	Construction	Erosion and Sediment Control	Investigate other erosion and sediment control plans that should be included as part of agreements in-lieu of plans. <u>Reference:</u> <i>Reducing Runoff from New Development: Recommendations for Fluvanna County</i> (University of Virginia, February 2010)	Evaluated by Current Staff
Capacity Building	Septic	Septic Connection	Investigate methods of ensuring that both centralized and decentralized sewage systems, and other utility infrastructure as needed, are, at a minimum, in compliance with all state and local laws and regulations in order to facilitate sustainable, environmentally-responsible development. <u>Reference:</u> 2009 Comprehensive Plan (<i>Land Use Chapter</i>)	Enabling Authority, Interagency Cooperation (with DEQ)
Capacity Building	Septic	Septic Connection	Consider providing central sewer and water service to the Zion Crossroads UDA in partnership with surrounding localities and private developers. <u>Reference:</u> 2009 Comprehensive Plan (<i>Infrastructure Chapter</i>)	Funding
BMP Implementation	Septic	Septic Pumping	Review septic maintenance requirements and associated reporting requirements with the Virginia Department of Health (For example, investigate methods of reporting septic pump-outs to the local government). <u>Reference:</u> 2009 Comprehensive Plan (<i>Infrastructure Chapter</i>), VA WIP II Draft (p. 20)	Interagency Cooperation (with VDH)
BMP Implementation	Urban		Consider developing a local TDR and/or PDR program. <u>Reference:</u> 2009 Comprehensive Plan (<i>Land Use Chapter</i>)	Evaluated by Current Staff

Strategy and Resources Reporting Template				
STRATEGY TYPE	SOURCE	BMP	STRATEGY	RESOURCE NEEDS
BMP Implementation	Urban	Multiple	Consider reviewing the zoning and subdivision regulations to maximize environmental benefits through best management practices such as low-impact development, quality and quantity stormwater controls, adequate buffering/screening, native landscaping, pervious surfaces, and walkability. <u>Reference:</u> 2009 Comprehensive Plan (<i>Natural Environment Chapter</i>)	Evaluated by Current Staff, Technical Assistance from DCR
BMP Implementation	Urban	Multiple	Consider developing a guidebook to low-impact development (LID) strategies.	Evaluated by Current Staff, Technical Assistance from DCR
BMP Implementation	Urban		Consider creating an inventory of existing outfalls, which would include an assessment of their condition and outline any needed repairs. <u>Reference:</u> <i>Stormwater Retrofit Opportunities on Public Lands in Fluvanna County</i> (Center for Watershed Protection, 2010)	Evaluated by Current Staff, Technical Assistance from DCR/Engineering Professionals, Funding, Enabling Authority
BMP Implementation	Urban	Tree Planting	Explore opportunities for tree planting in underused urban areas. <u>Reference:</u> <i>Stormwater Retrofit Opportunities on Public Lands in Fluvanna County</i> (Center for Watershed Protection, 2010)	Evaluated by Current Staff, Public/Private Partnership
BMP Implementation	Urban	Multiple	Consider pursuing grants and other funding sources to implement stormwater retrofit projects. <u>Reference:</u> <i>Stormwater Retrofit Opportunities on Public Lands in Fluvanna County</i> (Center for Watershed Protection, 2010)	Evaluated by Current Staff
Capacity Building	Urban		Consider adopting VA Stormwater Management Regulations prior to 2014. <u>Reference:</u> <i>Virginia Watershed Implementation Plan II Draft</i>	Training for Current Staff, Additional Staff, Funding
BMP Implementation	Urban		Explore the need for a centralized storm sewer system within designated Urban Development Areas. <u>Reference:</u> Fluvanna County Staff	Technical Assistance from DCR/Engineering, Funding
Capacity Building	Urban		Encourage corporate stewardship through proffers and other incentives; encourage corporate stewardship on public lands. <u>Reference:</u> <i>Virginia Watershed Implementation Plan II Draft</i>	Evaluated by Current Staff, Interagency Cooperation (VDGIF), Public/Private Partnership
Capacity Building	Urban		Consider offering homeowner education programs that address local water quality issue. <u>Reference:</u> <i>An Evaluation of Water Quality Benefits Provided by the Codes, Ordinances, and Policies of Fluvanna County, Virginia</i> (A. Pompei, University of Virginia, 2011)	Public/Private Partnership
Capacity Building	Urban		Consider correcting identified pollution prevention situations and enhancing pollution prevention through employee training, materials storage, and spill response. <u>Reference:</u> <i>Stormwater Retrofit Opportunities on Public Lands in Fluvanna County</i> (Center for Watershed Protection, 2010)	Public/Private Partnership
BMP Implementation	Multiple		Consider adopting more stringent criteria for water quality and quantity control to meet the loads and waste loads for a segmentshed. <u>Reference:</u> <i>Virginia Watershed Implementation Plan II Draft</i>	Interagency Cooperation, Training for Current Staff
Capacity Building	Multiple		Consider developing watershed plans for degraded creeks within Fluvanna County. <u>Reference:</u> Fluvanna County Staff	Additional Staff, Interagency Cooperation, Funding
Capacity Building	Multiple		Consider using land use taxation to require conservation practices. <u>Reference:</u> <i>Virginia Watershed Implementation Plan II Draft</i>	Evaluated by Current Staff, Interagency Cooperation