

Office of Regulatory Management  
Economic Review Form

<b>Agency name</b>	Department of Environmental Quality (“Department”)
<b>Virginia Administrative Code (VAC) Chapter citation(s)</b>	NA
<b>VAC Chapter title(s)</b>	NA
<b>Action title</b>	NA
<b>Date this document prepared</b>	January 26, 2024
<b>Regulatory Stage (including Issuance of Guidance Documents)</b>	Issuance of Guidance Document – GM24-2002 Virginia Runoff Reduction Method Version 4.1 (2024)

**Cost Benefit Analysis**

Complete Tables 1a and 1b for all regulatory actions. You do not need to complete Table 1c if the regulatory action is required by state statute or federal statute or regulation and leaves no discretion in its implementation.

Table 1a should provide analysis for the regulatory approach you are taking. Table 1b should provide analysis for the approach of leaving the current regulations intact (i.e., no further change is implemented). Table 1c should provide analysis for at least one alternative approach. You should not limit yourself to one alternative, however, and can add additional charts as needed.

Report both direct and indirect costs and benefits that can be monetized in Boxes 1 and 2. Report direct and indirect costs and benefits that cannot be monetized in Box 4. See the ORM Regulatory Economic Analysis Manual for additional guidance.

**Table 1a: Costs and Benefits of the Proposed Changes (Primary Option)**

<p>(1) Direct &amp; Indirect Costs &amp; Benefits (Monetized)</p>	<p><b>This action will issue Guidance Document GM24-2002 – Virginia Runoff Reduction Method, Version 4.1</b></p> <p>The Virginia Runoff Reduction Method (VRRM) 4.1 will provide stakeholders (builders, developers, planners, and land owners) that engage in land-disturbing activities an alternate method approved by the Department to demonstrate compliance with the water quality design criteria set out in subdivisions A 1 and A 2 of 9VAC25-875-580 (the Virginia Erosion and Stormwater Management (VESM) Regulation, effective July 1, 2024) (<i>see</i> 2023 Acts of Assembly Chapters 665 and 666 (HB 2390, SB 1168)).</p> <p>Direct Costs: As guidance, the VRRM does not impose any direct costs on either stakeholders or the Department.</p> <p>Indirect Costs: As guidance that provides an alternative for complying with water quality design criteria set out in subdivisions A 1 and A 2 of 9VAC25-875-580, the VRRM does not impose any indirect costs to either taxpayers or the Department.</p> <p>Direct Benefits: As guidance that provides an alternative to complying the with water quality design criteria, VRRM 4.1 is expected to result in direct benefits to stakeholders and the Commonwealth. They include:</p> <ul style="list-style-type: none"> <li>- Allowing stakeholders to use two new post-development best management practices (BMPs) set out in the new Virginia Stormwater Management Handbook, Version 1.0 (Handbook), for meeting water quality criteria requirements;</li> <li>- Allowing stakeholders to use expanded and updated BMP specifications that are in the Handbook;</li> <li>- Providing stakeholders the option of using a fourth land-cover criteria, mixed open, which offers a lower-cost alternative to achieve restoration of ground cover (as compared to re-establishing forest conditions);</li> <li>- Reducing the total phosphorus load for new development so that it more accurately reflects (1) the projected mix of land to be developed in Virginia’s Chesapeake Bay watershed and accounts for reduced phosphorus loading that has resulted from the 2011 ban on phosphorus in lawn fertilizer (2011 Acts of Assembly Chapter 341); and (2) less phosphate runoff leaving construction sites and entering state waters, particularly the Chesapeake Bay and its watershed; and</li> <li>- Significant time savings for planners, applicants, and reviewers.</li> </ul> <p>VRRM 3.0 (approved for use in 2016) and the original version, VRRM 1.0, are both based on older, more limited selection of BMPs and a</p>
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phosphorus (P) load of 0.41 lbs/acre/yr. While this level is higher than the P load in VRRM 4.1 (0.26 lbs/acre/yr), modeling by the Department and the agency’s contractor (Virginia Tech) showed that the total P reduction for projects with moderate or higher levels of impervious cover is actually lower at the loading rate in VRRM 4.1, thus reducing the cost of typical multifamily and affordable housing projects. In addition, VRRM 4.1 provides additional lower cost options for complying with the water quality technical criteria outlined in the VESM Regulation; thereby, lowering costs for site plan preparation, construction, and maintenance. The Department is unable to precisely quantify these benefits because the benefits are site specific since they depend on the soil type, land-use plan, and type of vegetative cover. However, modeling by Virginia Tech indicates requirements for onsite best management practices can be reduced by approximately 5% and the amount of offsite nutrient credits required may fall by as much as 50% or about 1000 pounds of total P per year. The current average market cost for a one-pound total P credit is \$15,000, resulting in an estimated cost savings of \$15 million per year.

Indirect Benefits: Updating the VRRM allows users and communities to benefit from and acknowledge reduced and more accurate levels of phosphate runoff. The Department is unable to quantify these benefits because the benefits are site specific since they depend on the soil type, land-use plan, and type of vegetive cover. However, because VRRM 4.1 indirectly encourages meadows or re-forestation instead of managed turf, maintenance costs may be reduced at a project site and environmental benefits (cleaner air and water) result from increased meadow and forest cover.

(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) As guidance, there are no direct and indirect costs.	(b) VRRM 4.1 provides an alternative for complying with water quality design criteria, allows stakeholders to use two new post-development best management practices (BMPs), and provides stakeholders with the option of using a fourth land-cover criteria that will help with linear infrastructure projects such as electrical power transmission lines. With this, VRRM 4.1 provides the regulated community with lower-cost alternative to achieve restoration of ground cover and additional, less expensive BMP options for compliance; thereby, saving on design and construction costs. In addition, because

		VRRM 4.1 will be used in conjunction with the Handbook, local authorities and the Department will benefit from the amount of staff time saved working with consultants on issues that have been addressed in the expanded and updated BMP specifications in the Handbook. The Department is unable to quantify these benefits because the benefits are site specific since they depend on the soil type, land-use plan, and type of vegetative cover.
(3) Net Monetized Benefit	NA	
(4) Other Costs & Benefits (Non-Monetized)	NA	
(5) Information Sources	NA	

**Table 1b: Costs and Benefits under the Status Quo (No change to the regulation)**

(1) Direct & Indirect Costs & Benefits (Monetized)	<p>Direct Costs: Continuing to use the existing VRRM 3.0 will result in higher direct costs for stakeholders, relative to VRRM 4.1, for projects with moderate or higher levels of impervious cover. Projects with low amounts of impervious cover and high amounts of maintained lawn instead of forest or mixed open space will have slightly lower direct costs. No direct costs will be occurred by the Department.</p> <p>Indirect Costs: Maintaining the current VRRM 3.0 and not providing VRRM 4.1 would have no indirect economic cost to regulated entities.</p> <p>Direct Benefits: Maintaining the current VRRM 3.0 and not providing VRRM 4.1 would have negative direct economic benefits to regulated entities that develop projects with moderate or higher levels of impervious cover, and slightly positive benefits for projects with low amounts of impervious cover and high amounts of maintained lawn instead of forest or mixed open space.</p> <p>Indirect Benefits: Maintaining the current VRRM 3.0 and not providing VRRM 4.1 would have no indirect benefits to regulated entities.</p>	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) NA	(b) NA

(3) Net Monetized Benefit	NA
(4) Other Costs & Benefits (Non-Monetized)	NA
(5) Information Sources	NA

**Table 1c: Costs and Benefits under Alternative Approach(es)**

<p>(1) Direct &amp; Indirect Costs &amp; Benefits (Monetized)</p>	<p>The Department is not aware of any alternatives to the current proposal other than (1) continuing to operate with the existing VRRM 3.0 with no updates or (2) delaying an update to the VRRM. However, the Stormwater Management Act requires the Department to periodically modify minimum design criteria for measures to control nonpoint source pollution so they reflect current engineering methods (§ 62.1-44.15:28 A 2 of the Code of Virginia, recodified at § 62.1-44.15:28 6, effective July 1, 2024) and to review the water quality design criteria standards upon completion of the 2017 Chesapeake Bay Phase III Watershed Implementation Plan (Phase III WIP)(9VAC25-870-63 C). The approval of VRRM 4.1 would satisfy these requirements and is significantly overdue per the requirements in the law and regulations.</p> <p>As discussed previously, the Department anticipates no significant costs associated with the proposed updates to the VRRM. The existing VRRM 3.0 is six years old and is not consistent with other models or existing fertilization practices in Virginia. Continuing to operate with the existing VRRM 3.0 from 2016 or the original version, VRRM 1.0, in many cases results in a higher phosphorus reduction requirement than VRRM 4.1, which results in additional construction costs for the implementation of larger or additional BMPs.</p> <p>VRRM 4.1 provides an alternative for complying with water quality design criteria, allows stakeholders to use two new post-development best management practices (BMPs), and provides stakeholders with the option of using a fourth land-cover criteria. With this, VRRM 4.1 provides the regulated community with lower-cost alternatives to achieve restoration of ground cover and additional, less expensive BMP options for compliance; thereby, saving on design and construction costs. Delaying any updates to the VRRM results in fewer options for the regulated community for complying with the water quality requirements in the VESM Regulation and increased costs for the continued construction and maintenance of larger and more expensive BMPs.</p>	
<p>(2) Present Monetized Values</p>	<p>Direct &amp; Indirect Costs</p>	<p>Direct &amp; Indirect Benefits</p>

	(a) As guidance, there are no direct and indirect costs.	(b) Unable to monetize direct and indirect benefits.
(3) Net Monetized Benefit	NA	
(4) Other Costs & Benefits (Non-Monetized)	NA	
(5) Information Sources	NA	

**Impact on Local Partners**

Use this chart to describe impacts on local partners. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

**Table 2: Impact on Local Partners**

(1) Direct & Indirect Costs & Benefits (Monetized)	<p>Direct Costs: There are no direct costs to local partners because the guidance does not change the existing responsibilities of local governments.</p> <p>Indirect Costs: There are no indirect costs to local partners because the guidance does not change the existing responsibilities of local governments.</p> <p>Direct Benefits: There are no direct benefits to local partners because the guidance does not change the existing responsibilities of local governments.</p> <p>Indirect Benefits: There are no indirect benefits to local partners because the guidance does not change the existing responsibilities of local governments.</p>	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) NA	(b) NA
(3) Other Costs & Benefits (Non-Monetized)	NA	
(4) Assistance	NA	

(5) Information Sources	NA
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**Impacts on Families**

Use this chart to describe impacts on families. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

**Table 3: Impact on Families**

(1) Direct & Indirect Costs & Benefits (Monetized)	<p>Direct Costs: There are no direct costs that impact families associated with the guidance.</p> <p>Indirect Costs: There are no indirect costs that impact families associated with the guidance.</p> <p>Direct Benefits: There are no direct costs that impact families associated with the guidance.</p> <p>Indirect Benefits: There are no indirect costs that impact families associated with the guidance.</p>	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) NA	(b) NA
(3) Other Costs & Benefits (Non-Monetized)	NA	
(4) Information Sources	NA	

**Impacts on Small Businesses**

Use this chart to describe impacts on small businesses. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

**Table 4: Impact on Small Businesses**

(1) Direct & Indirect Costs & Benefits (Monetized)	Small businesses would have the same impact as described in 1a above. The department is unable to identify the number of small businesses that would utilize this guidance document.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) See 1a.	(b) See 1a.
(3) Other Costs & Benefits (Non-Monetized)	NA	
(4) Alternatives	NA	
(5) Information Sources	NA	



## Changes to Number of Regulatory Requirements

**Table 5: Regulatory Reduction**

For each individual action, please fill out the appropriate chart to reflect any change in regulatory requirements, costs, regulatory stringency, or the overall length of any guidance documents.

### *Change in Regulatory Requirements*

VAC Section(s) Involved*	Authority of Change	Initial Count	Additions	Subtractions	Total Net Change in Requirements
NA	(M/A):				
	(D/A):				
	(M/R):				
	(D/R):				
				<b>Grand Total of Changes in Requirements:</b>	(M/A):
					(D/A):
					(M/R):
					(D/R):

**Key:**

*Please use the following coding if change is mandatory or discretionary and whether it affects externally regulated parties or only the agency itself:*

**(M/A):** Mandatory requirements mandated by federal and/or state statute affecting the agency itself

**(D/A):** Discretionary requirements affecting agency itself

**(M/R):** Mandatory requirements mandated by federal and/or state statute affecting external parties, including other agencies

**(D/R):** Discretionary requirements affecting external parties, including other agencies

### *Cost Reductions or Increases (if applicable)*

VAC Section(s) Involved*	Description of Regulatory Requirement	Initial Cost	New Cost	Overall Cost Savings/Increases
The applicable sections of the Virginia Erosion and Stormwater Management Regulation, 9VAC25-875-580 and 9VAC25-875-590, have 9 statutory requirements	Water quality design criteria and compliance requirements are demonstrated through the use of the VRRM and post-construction best management practices. For VRRM 4.1, the	\$30 million/yr	\$15 million/yr	Modeling by Virginia Tech indicates requirements for onsite best management practices can be reduced by approximately 5% and the amount of offsite nutrient credits required

and 0 discretionary requirements.	Virginia Stormwater Management Handbook, Version 1.0, contains design specifications for the best management practices.			may fall by as much as 50% or about 1000 pounds of total phosphorus per year. The current average market cost for a one-pound phosphorus credit is \$15,000, resulting in an estimated cost savings of \$15 million per year.

*Other Decreases or Increases in Regulatory Stringency (if applicable)*

<b>VAC Section(s) Involved*</b>	<b>Description of Regulatory Change</b>	<b>Overview of How It Reduces or Increases Regulatory Burden</b>
NA		

*Length of Guidance Documents (only applicable if guidance document is being revised)*

<b>Title of Guidance Document</b>	<b>Original Length</b>	<b>New Length</b>	<b>Net Change in Length</b>
GM24-2002 Virginia Runoff Reduction Method Version 4.1	VRRM 1.0 (20 pages)* GM16-2001 VRRM 3.0 (92 pages)	112 pages	0

\* The VESM Regulation, at 9VAC25-875-590 A., states that “Compliance with the water quality design criteria set out in subdivisions A 1 and A 2 of 9VAC25-875-580 shall be determined by utilizing the Virginia Runoff Reduction Method or another equivalent methodology that is approved by the department.” Until such time as the State Water Control Board adopts amendments to the VESM Regulation, VRRM 4.1 will be available for use by the regulated community as “another equivalent methodology that is approved by the department.”

The VESM Regulation, at 9VAC25-875-580, sets the total phosphorus load for new development at 0.41 lbs/acre/yr. As a result, the Department cannot mandate use of the lower phosphate load in VRRM 4.1 until the State Water Control Board adopts amendments to the VESM Regulation that change that limit and remove or change the Documents Incorporated by Reference, which includes the User Guide for VRRM 1.0 (20 pages). Because of the existing

regulatory requirements, the Department will have a one-year transition period for stakeholders, who have been using the existing manuals, guidance, and VRRM, to provide flexibility for projects that are already in the planning stage. Plans submitted between July 1, 2024 and June 30, 2025 may be based on VRRM 1.0, VRRM 3.0, when used in conjunction with the existing manuals, handbooks and guidance, or VRRM 4.1, when used with the Virginia Stormwater Management Handbook, Version 1.0, which the Department plans to adopt as guidance effective July 1, 2024.

As explained above and in the User Guide for VRRM 4.1, moving to the updated spreadsheets provides numerous benefits to the regulated community, satisfies requirements in the law and current regulation to review the water quality design criteria, and recognizes current science and practices in the Bay watershed.

The Department will initiate a rulemaking process under the Administrative Process Act (APA) to amend the VESM Regulation, including 9VAC25-875-590 and the Documents Incorporated by Reference, to make the total phosphorus load for new development 0.26 lbs/acre/yr and change the “VRRM Instructions and Documentation, from March 28, 2011,” to the VRRM 4.1 User Guide and compliance spreadsheets for VRRM 4.1. The target effective date for these changes is July 1, 2025. Upon conclusion of the rulemaking process, but no earlier than July 1, 2025, VRRM 4.1 will replace both VRRM 1.0 and VRRM 3.0. The Department will also initiate a separate action through ORM and Town Hall to provide public notice and a 30-day public comment forum for the action to replace the VRRM 3.0 guidance with the VRRM 4.1 guidance. This is a benefit to stakeholders and the regulated community because it provides flexibility, makes more alternatives available, and remains consistent with existing laws and regulations.