



Virginia Department of Planning and Budget **Economic Impact Analysis**

9 VAC 25-875 Virginia Erosion and Stormwater Management Regulation
Department of Environmental Quality
Town Hall Action/Stage: 6522 / 10406
September 3, 2024

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with § 2.2-4007.04 of the Code of Virginia (Code) and Executive Order 19. The analysis presented below represents DPB’s best estimate of the potential economic impacts as of the date of this analysis.¹

Summary of the Proposed Amendments to Regulation

The State Water Control Board (Board) proposes to amend the regulatory text to align it with updates made to two guidance documents: the *Virginia Runoff Reduction Method* and the *Virginia Stormwater Management Handbook*.

Background

Per the Virginia Erosion and Stormwater Management Act (Va. Code § 62.1-44.15:28),² this regulation contains requirements for the effective control of soil erosion, sediment deposition, and stormwater, including nonagricultural runoff, that shall be met in any Virginia Erosion and Stormwater Management Program (VESMP) to prevent the unreasonable degradation of properties, stream channels, waters, and other natural resources. Subsection 3 of the Code (i.e., § 62.1-44.15:28:3) requires the Board’s regulations to be based upon relevant physical and developmental information concerning the watersheds and drainage basins of the

¹ Code § 2.2-4007.04 requires that such economic impact analyses determine the public benefits and costs of the proposed amendments. Further the analysis should include but not be limited to: (1) the projected number of businesses or other entities to whom the proposed regulatory action would apply, (2) the identity of any localities and types of businesses or other entities particularly affected, (3) the projected number of persons and employment positions to be affected, (4) the projected costs to affected businesses or entities to implement or comply with the regulation, and (5) the impact on the use and value of private property.

² <https://law.lis.virginia.gov/vacode/title62.1/chapter3.1/section62.1-44.15:28/>

Commonwealth, including data relating to land use, soils, hydrology, geology, size of land area being disturbed, proximate water bodies and their characteristics, transportation, and public facilities and services; subsection 6 (i.e., § 62.1-44.15:28:6) requires the regulations to establish water quality and water quantity technical criteria that shall be periodically modified as required in order to reflect current engineering methods.

The regulation being amended does not itself contain detailed technical criteria and methods. Instead it requires use of a guidance document, the Virginia Runoff Reduction Method (VRRM) or another equivalent methodology approved by DEQ for compliance with the water quality criteria in Article 3, Part V (9VAC25-875-570 et seq.). It also refers to a second guidance document, the *Virginia Stormwater Management Handbook* (Handbook), and also to the Virginia Stormwater BMP (Best Management Practice) Clearinghouse for the use of BMPs.

According to DEQ, the last substantive amendments to the water quality and water quantity technical requirements contained in the VRRM were in 2011, but relevant requirements outside of the document have changed significantly since then. One of the significant changes that occurred is the decrease in the amount of phosphorus that can be used following the 2011 ban on phosphorus in lawn fertilizer (i.e., Chapter 341 of the 2011 Acts of Assembly).³ Another significant change is the completion of the 2017 Chesapeake Bay Phase III Watershed Implementation Plan.

In order to update the standards by this action as required by law, DEQ has relied on modeling performed by Virginia Tech. The results of the modeling have been incorporated in the VRRM, and updates to this guidance document were published in Virginia Register on 2/26/2024 with a delayed effective date of 4/27/2024.⁴ The first of the proposed changes would align the regulatory text with this updated VRRM guidance by updating the date of that document (which is incorporated by reference into the regulation) from 2011 to 2024.

A second proposed change would amend the language to state that the total phosphorus load of new development projects shall not exceed 0.26 pounds per acre per year rather than 0.41 pounds per acre per year, and that the new standard would apply to plans submitted on or after July 1, 2025.

³ <https://lis.virginia.gov/cgi-bin/legp604.exe?111+ful+CHAP0341>

⁴ <https://townhall.virginia.gov/L/GDocForum.cfm?GDocForumID=2385>

A third substantive change would remove fifteen BMPs from the regulatory text. According to DEQ, these BMPs have been added to the Handbook, which became effective July 1, 2024.⁵

Estimated Benefits and Costs

The first and the second proposed changes to the text are intertwined in that the incorporation of the updated VRRM guidance in this regulation (stating that the total phosphorus load of new development projects shall not exceed 0.26 pounds per acre per year instead of the current 0.41 pounds per acre per year standard) is the impetus rather than the other way around. In other words, the change in the regulatory phosphorus standard is driven by the guidance document that reflects recent Virginia Tech modeling, rather than the regulatory text itself driving that change. Similarly, the recent VRRM guidance document allows the use of the earlier guidance document until July 1, 2025, and therefore the regulatory text is being amended to reflect that fact.

The proposed change in the allowable amount of total phosphorus load from the current 0.41 pounds per acre per year to 0.26 pounds for new development projects is more restrictive than the status quo. As mentioned above, the proposed standard reflects new modeling results performed by Virginia Tech using the latest phosphorus loading rates. However, in the new modeling, phosphorus loading rates were also updated for each land cover type for consistency with the Chesapeake Bay Model loading rates. The updated loading rates for several landcovers are lower than before, implying a decrease in the amount of phosphorus being transported to the Bay. This results from the continuing trend whereby an increasing percentage of forested/natural land (81%) is being converted for development relative to the percentage of additional agricultural land (19%) that is being converted. In addition to newer landcover loading rates, there have been reductions in fertilizer application rates due to the 2011 ban on fertilizers that contain phosphorus.

Similarly, the third substantive change to the regulatory text reflects the changes that occurred in the Handbook that became effective July 1, 2024. According to DEQ, the fifteen BMPs listed in the regulation have been added to the new Handbook with updated specifications. Also, the new Handbook contains additional BMPs as follows:

⁵ <https://townhall.virginia.gov/L/GDocForum.cfm?GDocForumID=2494>

- Section 7.4 of the handbook contains the following BMPs: Straw Wattles (C-ECM-01), Impermeable Diversion Fence (C-ECM-02), Slope Interruption Device (C-ECM-03), Waterbars and Sheet Flow Breakers (C-ECM-08), Flexible Transition Mat (C-ECM-16), Cofferdam Crossing (C-ENV-05), Stable Wetland Crossing (C-ENV-06), Gabions (C-ENV-07), Pump Around Diversion (C-ENV-08), Overnight Channel Protection (C-ENV-09), Trenchless Silt Fence (C-ENV-10), Wetland Berm (C-ENV-11), Wetland Weir Outlet (C-ENV-12), Wetland Cell Sediment Trap (C-ENV-13), Modified Turbidity Curtain for Stream (C-ENV-14), Seeding, Mulching, and Soil Stabilization (Wetlands/Streams) (C-ENV-15), Compost Filter Sock (C-PCM-05), Wood Chip Filter Berm (C-SCM-06), Rock Filter Outlet (C-SCM-08), Concrete Washout Pit (C-SCM-13), and Compost Blankets (C-SSM-04).
- Section 8.5 of the handbook contains the following BMPs: Regenerative Stormwater Conveyance (P-CNV-04), Tree Planting (P-FIL-09), Quantity Only Approach to BMPs (P-SUP-07), and Permanent Level Spreader (P-SUP-08).

According to DEQ, the updates to the VRRM guidance, total phosphorus load of new development projects, and BMPs for water quality compliance are expected to result in direct benefits to stakeholders and the Commonwealth. DEQ reports that these benefits have been addressed in the ORM Economic Review Forms for the Handbook and VRRM guidance. In addition to significant time savings for planners, applicants, and reviewers, the benefits include the following when used in conjunction with amendments to this regulation:

- Allows stakeholders to use new post-development BMPs set out in the new Handbook, for meeting water quality criteria requirements.
- Allows stakeholders to use expanded and updated BMP specifications that are in the Handbook.
- Provides 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).
- Reduces 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; and (2) less phosphate runoff leaving construction sites and entering state waters, particularly the Chesapeake Bay and its watershed.

- In addition, the Handbook provides up-to-date specifications for BMPs which would allow more efficient review of plans and permit applications since users and regulators would both have the same information and expectations.

In summary, the updates to the two guidance documents account for improvements in BMP methods and technology, and in information about land use patterns and water quality in the Chesapeake Bay Watershed. They also reflect application of data and information in the models that the U.S. Environmental Protection Agency and other researchers use to study, monitor, and predict conditions in the Chesapeake Bay and other watersheds in Virginia. Better information and updated techniques/BMPs allow the regulated community to use more effective, lower cost alternatives than the outdated requirements and specifications.

More specifically, the VRRM guidance version 1.0 and the newer version (VRRM 3.0) are both based on older, more limited selections of BMPs and a phosphorus load of 0.41 pounds/acre/year. While this level is higher than the load in the proposed VRRM version 4.1 (0.26 pounds/acre/year), modeling by DEQ and the agency's contractor (Virginia Tech) show that the total phosphorus 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 regulation, thereby, lowering costs for site plan preparation, construction, and maintenance. DEQ is unable to precisely quantify these benefits because the benefits are site specific as 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 five percent and the amount of offsite nutrient credits required may fall by as much as 50 percent or about 1,000 pounds of total phosphorus per year. As noted in the ORM Economic Review Form for the VRRM 4.1, the current average market cost for a one-pound total phosphorus credit is \$15,000, resulting in an estimated cost savings of \$15 million per year.

Similarly, the new BMP specifications are now included in the Handbook. Although some of the BMPs are already allowed under variance procedures, DEQ believes that the new

handbook would reduce confusion and uncertainty for stakeholders, agency staff, and local erosion and stormwater management program authorities about the specifications for multiple types of best management practices (i.e., their design, use, and maintenance), thereby lowering costs for site plans, plan review, and implementation. This would also allow faster plan development and review. DEQ estimates this could result in at least a 30-day time savings, decreasing the current average permit review and approval process, which includes time for the applicant to make revisions and resubmit plans, from 155 days to 125 days. According to DEQ, faster plan development and review is expected to provide \$233 million/year savings to the \$28 billion/year construction activity in Virginia. The \$233 million /year savings is the difference between the present value of \$28 billion assuming ten percent interest rate for the cost of debt and equity over an 11-month period versus over a 12-month period. The calculated present value is \$233 million higher when a project reaches completion in a shorter timeframe.

Moreover, updating the VRRM allows users and communities to benefit from reduced and more accurate levels of phosphorus runoff. DEQ is also 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. However, because the new 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. In addition, moving to a single source (the handbook for erosion and stormwater BMPs) for implementation of the new laws would allow projects to go to construction sooner and take advantage of a wider selection of BMPs.

Businesses and Other Entities Affected

This regulation applies to owners and operators who submit plans, obtain permits, and maintain compliance with requirements to control erosion and stormwater runoff from land-disturbing activities. No entity is disproportionately affected.

The Code of Virginia requires DPB to assess whether an adverse impact may result from the proposed regulation.⁶ An adverse impact is indicated if there is any increase in net cost or

⁶ Pursuant to Code § 2.2-4007.04(D): In the event this economic impact analysis reveals that the proposed regulation would have an adverse economic impact on businesses or would impose a significant adverse economic impact on a locality, business, or entity particularly affected, the Department of Planning and Budget shall advise the Joint Commission on Administrative Rules, the House Committee on Appropriations, and the Senate Committee on Finance.

reduction in net benefit for any entity, even if the benefits exceed the costs for all entities combined.⁷ As noted above, the proposals are mainly expected to reduce phosphorus nutrient credits as much as 50 percent worth \$15 million a year. Similarly, faster plan review is expected to speed up the pace of construction by at least 30 days, which is estimated to be worth \$233 million/year in savings to the \$28 billion/year construction activity in Virginia. Thus, no adverse impact is indicated.

Small Businesses⁸ Affected:⁹

The proposed amendments do not appear to adversely affect small businesses.

Localities¹⁰ Affected¹¹

The proposed regulations apply throughout the Commonwealth. However, it is likely that the localities in the Chesapeake Bay Watershed (roughly east of Interstate 95) are more susceptible to the proposed changes. DEQ believes that localities may need additional staff time to attend training associated with the updated VRRM, BMP design specifications, and Handbook; enjoy benefits from up-to date specifications, which would result in less staff time in reviewing, inspecting, and working through issues before and during construction; and enjoy benefits of completing construction projects faster and with fewer delays, thus supporting economic growth within the locality.

Projected Impact on Employment

There is no available data to estimate the impact on employment.

⁷ Statute does not define “adverse impact,” state whether only Virginia entities should be considered, nor indicate whether an adverse impact results from regulatory requirements mandated by legislation. As a result, DPB has adopted a definition of adverse impact that assesses changes in net costs and benefits for each affected Virginia entity that directly results from discretionary changes to the regulation.

⁸ Pursuant to § 2.2-4007.04 of the Code of Virginia, small business is defined as “a business entity, including its affiliates, that (i) is independently owned and operated and (ii) employs fewer than 500 full-time employees or has gross annual sales of less than \$6 million.”

⁹ If the proposed regulatory action may have an adverse effect on small businesses, Code § 2.2-4007.04 requires that such economic impact analyses include: (1) an identification and estimate of the number of small businesses subject to the proposed regulation, (2) the projected reporting, recordkeeping, and other administrative costs required for small businesses to comply with the proposed regulation, including the type of professional skills necessary for preparing required reports and other documents, (3) a statement of the probable effect of the proposed regulation on affected small businesses, and (4) a description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation. Additionally, pursuant to Code § 2.2-4007.1, if there is a finding that a proposed regulation may have an adverse impact on small business, the Joint Commission on Administrative Rules shall be notified.

¹⁰ “Locality” can refer to either local governments or the locations in the Commonwealth where the activities relevant to the regulatory change are most likely to occur.

¹¹ § 2.2-4007.04 defines “particularly affected” as bearing disproportionate material impact.

Effects on the Use and Value of Private Property

The new BMP specifications in the Handbook are expected to speed up real estate development time frames by approximately 30-days and provide \$233 million/year savings to the \$28 billion/year construction activity in Virginia. In addition, the proposed changes are expected to reduce compliance costs with meeting the erosion and stormwater runoff rules. Thus, effected point and non-point sources may see a positive impact of their asset values. In addition, to the extent proposed changes improve water quality and the environment, real estate values in affected areas may be positively affected.