

Department of Legislative Services  
Maryland General Assembly  
2015 Session

FISCAL AND POLICY NOTE

House Bill 381 (Delegate Lafferty, *et al.*)  
Environment and Transportation

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Agriculture - Nutrient Management - Phosphorus Management Tool

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This bill establishes criteria for determining phosphorus application rates under a nutrient management plan developed for an agricultural operation and incorporates the nutrient management plan requirements for agricultural operations in the Maryland Nutrient Management Manual of the Maryland Department of Agriculture (MDA), including any supplements, by reference, into statute. The criteria include a phased transition from use of a Phosphorus Site Index (PSI) to use of a Phosphorus Management Tool (PMT) to determine phosphorus application rates.

The bill takes effect June 1, 2015.

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Fiscal Summary

**State Effect:** The bill is not expected to significantly affect State finances in the near term, but it could contribute to increased State operating expenditures in the future if there is reduced availability of agricultural land application as a disposal method for sewage sludge generated at State wastewater treatment plants operated by the Maryland Environmental Service (MES).

**Local Effect:** Certain local governments may incur increased costs to dispose of sewage sludge to the extent the availability of agricultural land application for disposal of sewage sludge in the State is limited. Revenues are not directly affected.

**Small Business Effect:** Meaningful.

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## Analysis

**Bill Summary:** The criteria for determining phosphorus application rates under the bill are based on a phosphorus fertility index value (P FIV) developed by the University of Maryland that is used to describe the relative availability of phosphorus to a plant or crop. Under the criteria, agricultural fields or management units with a P FIV of 150 or greater are subject to limitations on phosphorus applications. The phased transition from use of the PSI to use of the PMT to determine phosphorus application rates on those fields or management units with a P FIV of 150 or greater is shown in **Exhibit 1**.

The PSI is the original procedure developed by the University of Maryland, approved by MDA, and described in the Maryland Nutrient Management Manual, that uses characteristics of soils, landforms, and management practices to identify potential risk of phosphorus losses from soils to waters. The PMT is a similar but updated procedure developed by the University of Maryland that is phased in, ultimately replacing the PSI.

The phased transition varies for agricultural operations, depending on which of three tiers the operation is classified within, based on the operation's average soil P FIV (average P FIV of the fields or management units within the operation with a P FIV greater than 150):

- Tier A operations – average soil P FIV of 150 or greater but less than 300
- Tier B operations – average soil P FIV of 300 or greater but less than 450
- Tier C operations – average soil P FIV of 450 or greater

The three tiers of operations transition through four phases, but the schedule for the transition through the four phases varies by tier, as shown in Exhibit 1. The four phases are:

- PSI phase – phosphorus application rates are determined according to specified criteria based on the potential risk of phosphorus loss from the field or management unit determined using the PSI.
- Transition management phase 1 (TM1) – phosphorus application rates are determined according to specified criteria based on the potential risk of phosphorus loss from the field or management unit determined using the PMT.
- Transition management phase 2 (TM2) – phosphorus application rates are determined according to specified criteria (that are more restrictive than those under TM1) based on the potential risk of phosphorus loss from the field or management unit determined using the PMT.
- PMT phase – phosphorus application rates are determined according to specified criteria (that are more restrictive than those under TM2) based on the potential risk of phosphorus loss from the field or management unit determined using the PMT.

In each of the phases, the implementation of best management practices that sufficiently lower the potential risk of phosphorus loss from the field or management unit allow for less restrictive phosphorus application rates to be followed. In each of the first three phases, the certified nutrient management consultant must provide the farm operator information outlining the changes in the management of the operation that will be required when the PMT becomes effective.

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**Exhibit 1**  
**Transition Schedule Under the Bill**  
**By Crop Year (July 1 of Prior Year – June 30 of Year Shown)**

	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
<b>Tier A</b>	PSI	PSI	PSI	TM1	TM2	PMT
<b>Tier B</b>	PSI	PSI	TM1	TM2	TM2	PMT
<b>Tier C</b>	PSI	TM1	TM1	TM2	TM2	PMT

Source: Department of Legislative Services

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A certified nutrient management consultant must report the average soil P FIV for each agricultural operation to MDA by September 1, 2016. In addition, licensed businesses preparing nutrient management plans and certified nutrient management consultants not operating under a license must report information relating to nutrient management plans developed for operations that have soils with a P FIV of 150 or above to MDA for the purpose of evaluating the implementation of the PMT. MDA determines the content of information to be reported and the schedule for reporting. MDA must maintain the confidentiality of the reported information.

Provisions of law that allow specified agricultural operations to be exempt from new State or local water quality laws or regulations under specified conditions do not affect the application or enforcement of this bill.

**Current Law:**

*Nutrient Management*

Pursuant to the Water Quality Improvement Act of 1998 (Chapters 324 and 325), agricultural operations with \$2,500 or more in gross annual income and livestock operations with 8,000 pounds or more of live animal weight must have and comply with a nutrient management plan for nitrogen and phosphorus. A nutrient management plan is prepared to “manage the amount, placement, timing, and application of animal waste,

commercial fertilizer, sludge, or other plant nutrients to prevent pollution by transport of bioavailable nutrients and to maintain productivity.”

A summary of each nutrient management plan must be filed and updated with MDA at a time and in a form that the department requires by regulation. The department must maintain a copy of each summary for three years in a manner that protects the identity of the individual for whom the nutrient management plan was prepared. By December 31 of each year, MDA must report to the Governor and the General Assembly on the farm acreage covered by nutrient management plans and the implementation and evaluation of those plans.

MDA certifies and licenses nutrient management consultants and businesses to prepare nutrient management plans for farm operations and also issues certificates to farm operators to develop their own plans. In consultation with the Nutrient Management Advisory Committee, MDA is required, by regulation, to prescribe the criteria, form, and content for certified nutrient management plans applicable to licensees and certificate holders and also to establish specified continuing education, recordkeeping, and reporting requirements.

Under MDA regulations, a person who manages or owns an agricultural operation, with certain exceptions, must revise and update the operation’s nutrient management plan at least once every three years from the date the current plan was prepared. In addition, specified changes in an agricultural operation may require the operator to modify or update a plan when the information in the plan is inadequate, incomplete, or fails to address a change.

### *Maryland Nutrient Management Manual*

The Maryland Nutrient Management Manual is incorporated by reference in MDA nutrient management regulations and provides technical standards and criteria which nutrient management plan recommendations must be consistent with.

### *PSI*

MDA regulations currently contain criteria for determining phosphorus application rates under a nutrient management plan for sites with P FIV of 150 or greater, based on the PSI. The criteria are similar to the criteria contained in the bill under the “PSI phase.”

**Background:** The PMT, developed by the University of Maryland, is a revision of the PSI. The University of Maryland indicates that the overall objective of the PMT is to identify critical areas where there is high potential for phosphorus loss due to high potential for transport to nearby surface waters and a large source of phosphorus, and also to

encourage the use of management practices in those critical source areas that protect water quality. The revision of the PSI, producing the PMT, “seeks to include new science relative to site and source factors and highlight management decisions[.]”

Adopting the PMT is an element of Maryland’s Phase II Watershed Implementation Plan (WIP), the federally mandated document that outlines specific steps the State will take to protect and restore the Chesapeake Bay under the Total Maximum Daily Load (TMDL). TMDL sets forth specific pollution reduction requirements for Maryland and other jurisdictions within the bay watershed. All reduction measures must be in place by 2025, with at least 60% of the actions completed by 2017. The U.S. Environmental Protection Agency (EPA) required each bay jurisdiction to develop WIPs detailing the strategies and specific actions that will be implemented to reduce pollution. Phase I WIPs were completed in 2010, and more detailed Phase II WIPs were completed in early 2012. A Phase III WIP, which must be submitted to EPA in 2018, will ensure that all practices are in place by the 2025 deadline.

Regulations implementing the PMT have been proposed by MDA over the past two years, but concerns have been raised about the impact of the implementation of the PMT on agricultural operations, and it has not been put into effect. The bill’s provisions are substantially similar to regulations proposed by MDA in the fall of 2014.

**State Fiscal Effect:** State finances are not expected to be significantly affected in the near term. In future years, however, the potential limitation of agricultural land application as an option for utilization of sewage sludge may be a contributing factor to increased operating costs borne by the State to dispose of sewage sludge generated at State wastewater treatment plants operated by MES.

The bill’s phosphorus application criteria may limit the availability of agricultural land application as a method of sewage sludge utilization in the State. Sewage sludge utilization sites are regulated by the Maryland Department of the Environment; there are currently 242 farms with agricultural land application permits. In 2013, 9.7% of sewage sludge generated in the State was land applied in the State, and a significant majority of the land application sites are farms. If other land application sites cannot be recruited, sewage sludge generators may incur higher costs for other utilization methods, such as transporting the sewage sludge to landfills or out of state.

MES currently uses land application in Virginia as a disposal option for sewage sludge generated from three State wastewater treatment plants that it operates. If regulations regarding land application become more restrictive in Virginia, land application of sewage sludge in Maryland could become an alternative at some point in the future. To the extent this bill limits that alternative, any resulting increase in MES operating costs for other utilization methods are allocated among the users of the plants, including the State. Based

on MES' current contract for land application in Virginia, if MES needed to send all of the sewage sludge from those three plants to a landfill instead, operating costs would increase by approximately \$300,000 annually, the majority of which would be borne by the State (and the remainder borne by other users of the plants).

**Local Fiscal Effect:** Local governments are similarly affected to the extent the bill's phosphorus application criteria limit the availability of agricultural land application as a method of sewage sludge utilization in the State. Local government-owned/-operated wastewater treatment plants that currently rely on land application in Maryland to dispose of sewage sludge may be required to find other means to dispose of the sewage sludge, at increased costs. Depending on the extent to which the availability of land application is limited, the increase in costs for local governments may be in the hundreds of thousands of dollars.

**Small Business Effect:**

*Agricultural Operations*

Costs increase for farms with high levels of phosphorus in the soil to conduct operations within phosphorus application rate limitations under the bill and to manage organic fertilizer produced on the farm that cannot be used on the farm due to the bill's limitations. Farms with low levels of phosphorus may benefit from availability of lower cost organic fertilizer, among other things.

Pursuant to a requirement in the fiscal 2015 operating budget bill, MDA contracted with the Business, Economic, and Community Network (BEACON) at Salisbury University to conduct an economic evaluation related to the implementation of the PMT. The study evaluated three scenarios for the implementation of the PMT on the Eastern Shore, where the PMT is expected to have the greatest impact due to soil phosphorus levels. The scenario closest to the transition schedule in the bill, involving a six-year implementation schedule, was estimated to impose \$22.5 million of net costs on Eastern Shore farms overall, when accounting for assumed State and federal subsidies. Some of the assumed subsidies are not existing subsidies, so if only current subsidies are assumed, the estimated net cost is likely higher.

Existing funding provided by the State (from State general and special funds) to assist with nutrient management activities includes the Manure Transport Program (\$1.1 million in the Governor's proposed fiscal 2016 budget, leveraging an additional \$600,000 provided by poultry integrators); the Animal Waste Technology Fund (\$2.5 million in the Governor's proposed fiscal 2016 budget); and nutrient management plan assistance (\$348,840 in the Governor's proposed fiscal 2016 budget).

### *Related Vendors and Contractors*

Contractors providing manure transport services and vendors of manure transport and loading equipment and spreading equipment for commercial fertilizer may meaningfully benefit from an increase in the demand for their services or products.

Small businesses preparing nutrient management plans for agricultural operations may meaningfully benefit during the transition period under the bill when nutrient management plans are likely updated more often than they otherwise would be.

### *Small Business Sewage Sludge Generators*

Small business sewage sludge generators may incur increased costs due to any limitation on the availability of agricultural land application as a disposal option. For example, a small business that transports sewage sludge to a larger plant for treatment, such as one of the State's wastewater treatment plants operated by MES, may have the increased costs of the plant's sewage sludge utilization passed on to it.

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## **Additional Information**

**Prior Introductions:** None.

**Cross File:** SB 257 (Senator Pinsky, *et al.*) - Education, Health, and Environmental Affairs.

**Information Source(s):** Maryland Department of Agriculture, Department of Natural Resources, Maryland Department of the Environment, University System of Maryland, Maryland Environmental Service, Anne Arundel County, Department of Legislative Services

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