



Agency of Agriculture, Food, and Markets' Best Management Practices Program

AAFM Needs to Improve How They
Prioritize Grants and Track and Compile
Data to Calculate Phosphorus Reduction



Mission Statement

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Dear Colleagues,

Agriculture in Vermont is seen as a significant contributor of phosphorus pollution in the Lake Champlain and Lake Memphremagog basins. The Vermont Agency of Agriculture, Food, and Markets (AAFM) is the lead agency for addressing agricultural nonpoint source pollution of state waterways.

The largest of AAFM's grant programs related to water quality is the Best Management Practices (BMP) Program, which funds construction of farm improvements, which are designed to abate nonpoint source agricultural waste discharges to Vermont waters. Since the program's inception in fiscal year 1996, the State has appropriated over \$22 million in capital funds for use within the BMP program.

Our audit of the BMP program found that AAFM issued most of its fiscal year (FY) 2016 and 2017 BMP program grants to farms located in the Lake Champlain Basin, which is the highest priority waterway. In June 2017, AAFM started using a matrix to prioritize their grant applications to the BMP program. The Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan gives priority to three areas within the Lake Champlain basin, and the State has identified smaller areas within these where the greatest phosphorus reduction can be achieved. However, the matrix does not address whether a proposed project is in one of these areas.

We also identified that AAFM does not directly monitor farmers' maintenance of farm improvements, known as conservation practices, funded by the BMP program, and AAFM has weaknesses in how they communicate the obligation to maintain the practices to farmers.

The Department of Environmental Conservation (DEC) is the lead agency for calculating nutrient pollution reduction impacts resulting from state projects, and AAFM is supposed to provide data to DEC to make phosphorus reduction calculations for the BMP program. In FY2016 and FY2017, AAFM did not provide DEC with the data necessary to make those calculations.

AAFM is in the process of building a database intended to be used by federal, state, and local partners to collaboratively track financial and technical assistance provided to farmers. AAFM intends to use this database to report information about BMP program projects needed by DEC for estimating nutrient pollution reduction impacts. AAFM expects the database to go live in 2018.

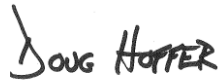
During the audit, we also noted that AAFM needs to update the rules for the BMP program as well as address some grant compliance issues. For example, AAFM does not document in the grant file whether a farm is in good standing with AAFM. Also, AAFM does not request proof of workers' compensation insurance prior to issuing a grant to farms that perform some of the project work funded under a BMP grant.

We made a variety of recommendations to AAFM, such as revising the BMP Applicant Prioritization Matrix to allow for additional weight be given to priority areas outlined in the State's water quality plans for Lake Champlain.

This report is available on the state auditor's website,
<http://auditor.vermont.gov/>.

I would like to thank the management and staff at the Agency of Agriculture, Food, and Markets, as well as staff at the Department of Environmental Conservation, for their cooperation and professionalism throughout the course of this audit.

Sincerely,



DOUGLAS R. HOFFER
State Auditor

ADDRESSEES

The Honorable Mitzi Johnson
Speaker of the House of Representatives

The Honorable Tim Ashe
President Pro Tempore of the Senate

The Honorable Phil Scott
Governor

Ms. Susanne Young
Secretary, Agency of Administration

Adam Greshin
Commissioner, Department of Finance and Management

Anson Tebbetts
Secretary, Agency of Agriculture, Food, and Markets

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Introduction

Phosphorus stimulate the growth of algae. Excessive algae turn lake and pond water green and makes them unsuitable at times for recreational uses or drinking. Lake Carmi was closed to swimming for months this past year because of algae blooms from phosphorus pollution, and algae blooms have occurred in areas of Lake Champlain.

Agriculture in Vermont is believed to be a significant contributor of phosphorus pollution in the Lake Champlain and Lake Memphremagog basins. Models estimate that 40 percent of the overall phosphorus load¹ in Lake Champlain comes from agricultural nonpoint sources.²

The Vermont Agency of Agriculture, Food, and Markets (AAFM) is the lead agency for addressing agricultural nonpoint source pollution of state waterways. In addition to inspecting farms, AAFM also provides technical and financial assistance to farmers for water quality conservation practice implementation.

The largest of AAFM's assistance programs related to water quality is the Best Management Practices (BMP) Program, which funds construction of farm improvements designed to abate nonpoint source agricultural waste discharges to Vermont waters. Farm improvements eligible for BMP program funding, such as waste storage facilities, are classified as conservation practices that have been defined by the federal Natural Resources Conservation Services (NRCS).³ Since the program's inception in fiscal year 1996, the State has appropriated over \$22 million in capital funds for use within the BMP program.⁴

Given AAFM's role in addressing agricultural pollution to waterways and the significance of the BMP program to this effort, the State Auditor's Office (SAO) determined to assess whether and how AAFM (1a) grants BMP program funds to farmers for projects intended to reduce agricultural waste discharge to waterways consistent with priorities outlined in statute, rules, and policy; (1b)

¹ For purposes of this report, load is the quantity of phosphorus entering a waterway in a given period of time.

² Phosphorus loading to Lake Champlain is dominated by "nonpoint sources," which are generated by runoff and erosion across the landscape, as opposed to "point sources" such as wastewater and certain stormwater discharges that are conveyed by a pipe or other discrete conveyance and are more closely monitored and regulated.

³ The NRCS is a component of the United States Department of Agriculture that provides farmers with federal technical and financial assistance.

⁴ Some capital appropriations authorized AAFM to spend some of the capital funds on other assistance programs. In recent years, the amount of capital funds that AAFM has spent on these other programs has been minimal.

monitors farmers' maintenance of these projects; and (2) collects data and measures the impact of BMP program projects on phosphorus pollution to waterways. Our audit focused on fiscal year (FY) 2016 and 2017.

Appendix I contains detail on our scope and methodology. Appendix II contains a list of abbreviations used in this report.

Highlights

The largest water quality assistance program at the Agency of Agriculture, Food, and Markets (AAFM) is the Best Management Practices (BMP) Program for the construction of farm improvements (often referred to as conservation practices) designed to abate nonpoint source agricultural waste discharges to Vermont waters. Given AAFM's role in reducing agricultural pollution to waterways and the significance of the BMP program to this effort, the SAO determined to assess whether and how AAFM (1a) grants BMP program funds to farmers for projects intended to reduce agricultural waste discharge to waterways consistent with priorities outlined in statute, rules, and policy; (1b) monitors farmers' maintenance of these projects; and (2) collects data and measures the impact of BMP program projects on phosphorus pollution to waterways. Our audit focused on fiscal year (FY) 2016 and 2017.

Objective 1a Finding

AAFM issued most of its fiscal year (FY) 2016 and 2017 BMP program grants to farms located in the Lake Champlain Basin, which is the highest priority waterway in statute. In June 2017, AAFM agricultural engineers started using a matrix to weight the priorities outlined in statute, such as basin location, when reviewing a proposed BMP project. However, the matrix does not include important factors in assessing priority. The State has identified three priority areas within the Lake Champlain Basin that require additional measures in order to achieve phosphorus reduction requirements and has further identified areas within these priority areas where the greatest phosphorus reductions can be achieved. Without including priority areas and those areas within those priority areas where the greatest phosphorus reductions can be achieved in assessing priority for BMP projects, the State lacks assurance that grants are being directed to projects providing the greatest nutrient pollution reduction potential.

Objective 1b Finding

AAFM does not directly monitor farmers' maintenance of farm improvements, known as conservation practices, funded by the BMP program. Grant agreements signed by farmers require that the grantee maintain the improvements that make up the project for their designed lifespan. However, AAFM does not communicate the estimated useful lifespan⁵ of a conservation practice in the grant agreement, and the grant agreements do not always contain the correct title of a conservation practice or a complete list of the improvements. Lastly, AAFM does not provide the farmers with an operation and maintenance plan to inform farmers of the activities necessary to keep a conservation practice functioning as intended. Therefore, it is unclear how farmers have the information they need to comply with the grant requirements. If the conservation practices do not achieve their useful life, nutrient pollution reductions will not be as expected.

Objective 2 Finding

The Department of Environmental Conservation (DEC) is the lead agency for calculating nutrient pollution reduction impacts resulting from state projects, and AAFM is supposed to provide data to DEC to make phosphorus reduction calculations for the BMP program. However, AAFM did not provide DEC with the data necessary to make those calculations in FY2016 and FY2017.

Specifically, AAFM did not provide acreage data for BMP program projects that exclude livestock from waterways in the pasture. Further, while the State plans to calculate phosphorus reductions in production areas for those farms that have been inspected by AAFM and found to be compliant with the Required Agricultural Practices (RAPs)⁶ and AAFM's farm permit, AAFM has not developed a methodology to make and record these compliance determinations. Without this information, DEC cannot calculate pollution reduction impacts for livestock exclusion projects constructed in pastureland or compliant production areas.

AAFM is in the process of building a database intended to be used by federal, state, and local partners to collaboratively track financial and technical assistance provided to farmers. AAFM intends to use this database to report information about BMP program projects needed by DEC for estimating nutrient pollution reduction impacts. AAFM expects the database to go live in 2018.

Other Matters

The BMP rules need updating, as there have been statutory amendments and there are some provisions in the rules that are contrary to current practice. For example, statute states that applicants must pay at least ten percent of the total project cost, but the BMP rules state that the applicants must pay at least 15 percent. AAFM's current funding policy reflects the limit in statute and not the

⁵ This is the intended period of time that the conservation practice will function successfully with only routine maintenance.

⁶ RAPs are required by statute and are practices and management strategies to which all types of farms must be managed to reduce the impact of agricultural activities on water quality.

limits set forth in the BMP rules. Another example is that the BMP rules limit the farmer's obligation to maintain a conservation practice to 10 years. However, according to the Natural Resources Conservation Services (NRCS) many conservation practices have estimated useful lives that exceed 10 years, some twice as long.

Statute requires a farm to be in good standing⁷ with the Secretary of AAFM. However, AAFM did not document whether farms are in good standing with the agency prior to issuing a grant in the files we reviewed, and AAFM did not have it written in any of their procedures we reviewed to check for this requirement prior to issuance.

In addition, the BMP Program grants contain clauses that the grantee is signing under the pains and penalties of perjury that they are in good standing with the Commissioner of Taxes. The grants also state that final payment may be withheld if the Commissioner of Taxes determines that the grantee is not in good standing.⁸ However, the SAO identified an instance where a grantee was not in good standing, received a grant, and received full payment. The Department of Finance and Management agreed that grant payments may not be diverted for purposes of paying tax debts, which explains why the final grant payment was made to the grantee. It is not clear why this provision is in the grant agreement when it is not allowed per statute.

AAFM also does not request proof of workers' compensation insurance prior to issuing a grant to farms that perform some of the project work funded under a BMP grant. AAFM grant recipients are required to carry workers' compensation insurance in accordance with Vermont laws,⁹ with respect to all work performed under the grant, and to provide certificates of insurance to the agency. Farms that perform some of the project work funded by the BMP program may be subject to the workers' compensation provision of the grant agreement.

Recommendations

We made a variety of recommendations to the Secretary of the Agency of Agriculture, Food and Markets. The following are examples of those recommendations:

- Revise the BMP Applicant Prioritization Matrix to allow for additional weight be given to priority areas within a basin and to areas within those priority areas that have the greatest potential for phosphorus reduction.

⁷ "Good standing" means the applicant does not have an active enforcement violation that has reached a final order with the Secretary or is in compliance with all terms of a current grant agreement or contract with the AAFM.

⁸ A person is in "good standing" with respect to any and all taxes payable if: (1) no taxes are due and payable and all returns have been filed; (2) the liability for any taxes due and payable is on appeal; (3) the person is in compliance with a payment plan approved by the Commissioner of Taxes.

⁹ 21 V.S.A. Chapter 9 contains the statutes for employer's liability and workers' compensation.

- List every conservation practice to be reimbursed in the BMP grant documents and the estimated useful lives of those projects, if known.
- Modify the agency's granting plan to include verification that a BMP program grant applicant is in good standing with AAFM and develop a method to document the verification in the grant file.
- Seek advice of the Department of Finance and Management and the Attorney General's Office regarding whether the grant provision that allows the Vermont Department of Taxes to withhold the final grant payments to pay taxes owed should be removed from BMP program grant agreements.

Background

Vermont statute¹⁰ explicitly lists as state policy that, “all farms meet certain standards in the handling and disposal of animal wastes” and that regardless of farm size “the cost of meeting these standards shall not be borne by farmers only, but rather by all members of society, who are in fact the beneficiaries.” The standards referred to are Required Agricultural Practices (RAPs)¹¹ that all farmers must adhere to for preventing agricultural pollutants from entering groundwater and waterways.

According to Vermont statute, best management practices (BMPs) are site-specific, on-farm conservation practices implemented to address the potential for agricultural pollutants to enter the waters of the State. AAFM established regulations, effective January 1996, known as the Best Management Practices Rules. These rules define BMPs as site-specific, on-farm remedies implemented either voluntarily or as required to achieve compliance with state water quality standards (i.e., RAPs). These practices are implemented in three areas of a farm: production, pastureland, and cropland.

1. Production area (a.k.a., barnyard or farmstead)-- the area of a farm that typically includes the farm houses, barns and milking parlors, barnyards, feed bunks, manure pits, and driveways.
2. Pastureland-- the area of a farm where animals graze.
3. Cropland-- the area of a farm where crops are planted and harvested.

Best Management Practices (BMP) Program

The BMP program is AAFM’s largest clean water investment grant program for farms, which uses capital funds¹² as the funding source for the grants. AAFM reported that the BMP program accounted for 58 percent of all their clean water investments in FY2016. Established by Act 62 (1995), this program provides technical assistance and grants to farmers for the

¹⁰ 6 V.S.A. § 4801

¹¹ RAPs are required by statute and are practices and management strategies to which all types of farms must be managed to reduce the impact of agricultural activities on water quality.

¹² Capital funds are used for tangible capital investments but may include the planning and design directly associated with those tangible capital investments per 32 V.S.A. § 309.

construction of farm improvements designed to abate agricultural nonpoint source waste discharges to Vermont waters.

The BMP program funds improvements constructed in the production area or the pastureland of a farm operation. The BMP program does not fund practices such as strip cropping that may be implemented in the cropland. Practices implemented in cropland are funded by other AAFM programs.

Farm improvements are comprised of various conservation practices. The NRCS maintains a list of conservation practices, and AAFM has adopted some of these practices as eligible for BMP program funds.

The BMP program primarily funds construction projects in the production area of a farm to mitigate water quality issues. These practices generally serve one of two purposes in the production area. They either:

1. divert clean water from mixing with manure or other waste to prevent it from carrying that waste to a waterway, or
2. contain or store waste so that the waste does not run into waterways.¹³

An example of a conservation practice that may be constructed to divert clean water away from contaminated areas is a roof runoff structure. This conservation practice is designed to collect, control, and convey precipitation runoff from a roof to divert that water from contaminated areas. An example of a conservation practice that may be constructed to contain waste in a production area is a waste storage facility for manure or other agricultural by-products.

The BMP program also grants funds for constructing certain conservation practices in the pastureland, such as fencing to exclude animals from waterways. This prevents the livestock from damaging streambanks and/or depositing manure in the waterways.

The NRCS provides the estimated useful life for some conservation practices, which AAFM recognizes as the lifespan of the practice. (See Appendix III for the list of conservation practices eligible for reimbursement under the BMP program and the NRCS estimated useful lifespan.)

¹³ According to AAFM agricultural engineers, the agricultural waste captured in the production area is eventually distributed to either the cropland or pastureland.

Through the BMP program, AAFM issued 29 grants with a start date¹⁴ in FY2016, and an aggregate award amount of nearly \$1.2 million. It issued 35 grants with a start date in FY2017 and an aggregate award amount of nearly \$1.8 million.

AAFM employs agricultural engineers who are responsible for prioritizing the applications for the BMP program, as well as designing and overseeing those projects. The preliminary planning that goes into these projects can be time intensive. AAFM now has seven agricultural engineers and another person within the agency who sometimes assists with the program. AAFM had three agricultural engineers in FY2016 and four in FY2017.¹⁵ According to the AAFM financial director, the cost¹⁶ of these employees in FY2016 and FY2017 was \$197,000 and \$350,000, respectively. AAFM also used contracted engineers to assist with engineering work for BMP grants. An AAFM financial manager reported that the cost of these contracted engineers was \$99,000 in FY2016 and \$230,000 in FY2017.

Total Maximum Daily Load (TMDL)

A TMDL is a legally binding document, approved by the United States Environmental Protection Agency (EPA), that identifies the surface water designated use that is impaired, the pollutant that causes the impairment, and the total maximum discharge of that pollutant that may be allowed to enter the waterbody in question and still maintain the designated use, such as swimming, boating, and public water supply. The State uses a TMDL in establishing clean water priorities.

Vermont has three lakes and one pond that have phosphorus TMDLs--Lake Champlain, Lake Memphremagog, Lake Carmi, and Ticklenaked Pond. The Connecticut River Basin has a TMDL for nitrogen. Phosphorus is the pollution of concern for fresh water, and nitrogen is the pollution of concern for salt water.

The EPA established the Phosphorus TMDLs for Vermont Segments of Lake Champlain as of June 17, 2016 (see Appendix IV for a map of the Lake Champlain segments subject to Vermont's TMDL). Per the TMDL, agricultural production areas in Vermont load 12 metric tons of phosphorus into Lake Champlain annually, and Vermont must reduce that loading by 9 metric tons. The agricultural land outside of the production area (pastureland and

¹⁴ Start date is the beginning of the performance period of the grant agreement.

¹⁵ There is another AAFM employee who sometimes assists with the BMP program but has not been included in these numbers for purposes of this report.

¹⁶ The cost includes salary, benefits, and training and travel expenses.

cropland) load 250 metric tons of phosphorus annually, and Vermont must reduce that loading by 134 metric tons.

The EPA expected Vermont to provide policy commitments relating to nonpoint source phosphorus reductions in a basin-wide scale implementation plan. The Vermont Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan contains policy commitments, such as required agricultural practices.

Estimating Nutrient Pollution Reduction

DEC is the lead agency in calculating nutrient pollution reduction impacts for all state-funded water quality projects including, but not limited to, the BMP program. Estimating nutrient pollution reduction that results from clean water projects, such as those funded by BMP program grants, requires three key pieces of data and information.

1. *Loading rate of nutrient pollution from different land uses, such as farm production areas and pastureland--* these data are referred to as base loads and are currently available for the Lake Champlain and Lake Memphremagog basins, two of four basins in Vermont. Models were used to develop estimates of phosphorus loads for different areas of these basins. (See Appendix V for a map of Vermont's major water drainage basins.)
2. *Average annual performance of specific project types in reducing nutrient pollution--* Performance is expressed as an average annual percentage of nutrient pollution reduced from the base load and is referred to as an efficiency.
3. *Size of land area treated by a clean water project.*

The following formula would be used to calculate the impact of a clean water project:

$$\text{(Base load)} \times \text{(size of land area treated)} \times \text{(efficiency)} = \text{(estimated nutrient pollution reduction impact)}$$

The following is a hypothetical example of how to calculate the impact of a clean water project when all the necessary data are known:

$$\begin{aligned} & 3.35 \text{ pounds of phosphorus per acre per year} \\ & \times 10 \text{ acres of land treated by a water quality project} \\ & \quad \times \underline{55 \text{ percent efficiency}} \\ & = \text{estimated annual phosphorus load reduced by 18.4 pounds} \end{aligned}$$

The annual estimated base load for those 10 acres before the clean water project is 33.5 pounds of phosphorus (3.35 x 10). Since the hypothetical project would reduce the base load by 55 percent (18.4 pounds), the 10 acres is estimated to contribute 15.1 (33.5 - 18.4) pounds of phosphorus to a waterway annually after the project is completed.

DEC uses the BMP Accounting and Tracking Tool (BATT) to estimate the nutrient pollution reduction impact from conservation practices based on the formula discussed above.

With regard to conservation practices funded by the BMP program, AAFM will report information to DEC for those conservation practices implemented in pastureland for which efficiencies are known.

AAFM will use 80 percent as the efficiency for the production area, which is consistent with the assumptions in the Lake Champlain and Lake Memphremagog TMDLs.¹⁷ The results of AAFM farm inspections, rather than conservation practices implemented under the BMP program, will provide the basis for estimating phosphorus reduction. For those farms that are determined to have production areas that are compliant with the requirements of their AAFM farm permit and the RAPs, DEC will calculate an 80 percent phosphorus reduction.

¹⁷ The Lake Champlain and Lake Memphremagog TMDLs assume that 80 percent of the baseload for agricultural production areas can be reduced by better production area management.

Objective 1a: Most Grants Are for Projects in Highest Priority Waterway, but the Project Prioritization Tool Could be Enhanced

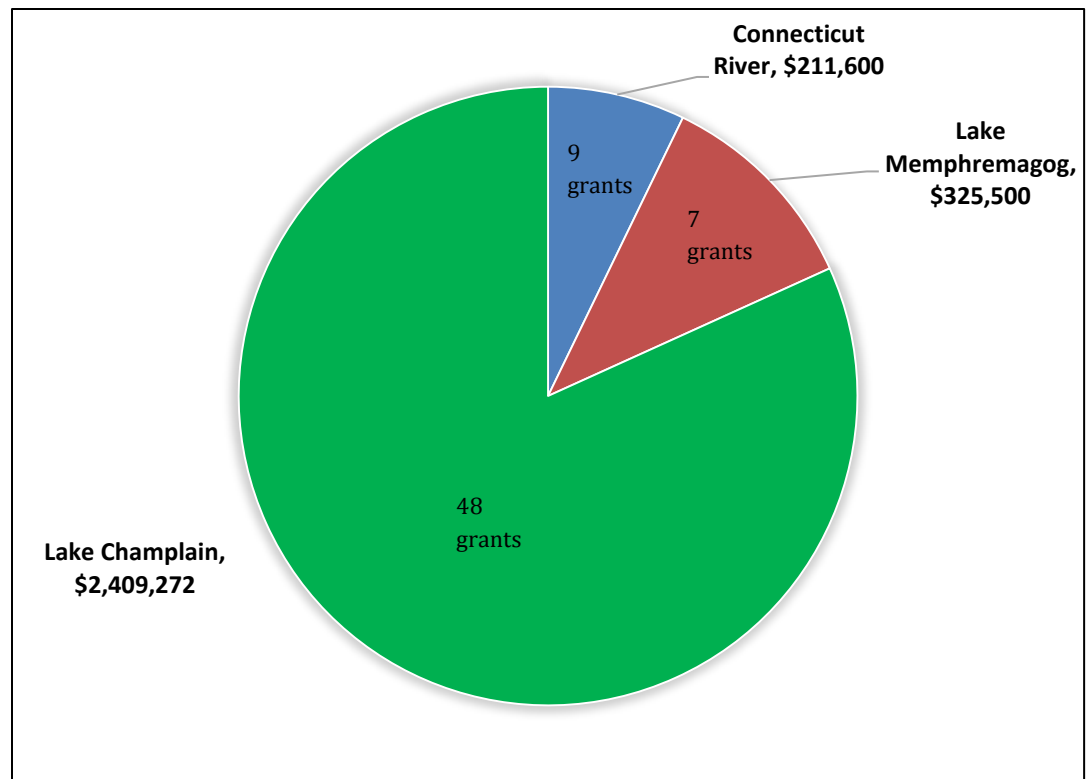
AAFM issued most of their FY2016 and FY2017 BMP program grants consistent with the statutory provisions that rank the Lake Champlain Basin as the highest priority area in the State for financial assistance to farms for on-farm improvements that reduce agricultural pollution. Forty-eight of the sixty-four BMP program grants issued by AAFM with start dates in FY2016 and FY2017 (seventy-five percent) went to farms located in the Lake Champlain Basin.

However, the Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan gives priority to three areas within the Lake Champlain basin. The State has further identified areas within these priority areas where the greatest phosphorus reductions can be achieved. In June 2017, AAFM created a matrix to assess the priority of applications received for the BMP program, but this matrix does not give additional weight to a farm located in one of these priority areas over another similar project located elsewhere in the Lake Champlain Basin nor does it give weight to areas within the priority areas where the greatest phosphorus reductions can be achieved. Therefore, AAFM may be directing resources to BMP projects that do not result in the greatest nutrient pollution reduction.

Most Grants Were for Projects Located in the Lake Champlain Basin

Per statute, farms located in the Lake Champlain Basin have the highest priority for financial assistance in support of their voluntary construction of on-farm improvements designed to abate nonpoint source agricultural waste discharges into the waterways. Most of the FY2016 and FY2017 BMP program grants were issued to farms located in that basin. AAFM issued 64 grants to farms that had a grant start date in FY2016 or FY2017. The total original award amount of these grants was over \$2.9 million.

Figure 1: Summary of Grant Awards in FY2016 & FY2017 By Major Basin^a



a. These grants had a start date in FY2016 or FY2017. The totals represent the original award amounts of the grants and do not include any grant amendments.

We reviewed 30 of these grants, which ranged in award value from \$5,400 to \$152,966. Twenty-two grants in our review were for projects located in the Lake Champlain Basin.

Project Prioritization Tool Addresses Statutory Priorities but Not Priorities Established in Clean Water Plans

In June 2017, the AAFM implemented the BMP Applicant Prioritization Matrix (see Figure 2) to assess and document the priority of applications received for the program. According to an AAFM official, the tool was developed because of requirements in Act 64.¹⁸ Of the thirty grants we reviewed, three had a start date in June 2017 and all three of those grant files contained this matrix. There was no documentation in the other grant files we reviewed that recorded how AAFM's agricultural engineers prioritized grants to farms.

¹⁸ Act 64 (2015), an act relating to improving the quality of state waters.

As shown in Figure 2, the BMP Applicant Prioritization Matrix weights the basins in accordance with their priority location ranking and gives greater weight to proposed improvements on individual farms which do not meet RAPs because of physical constraints of a farm site¹⁹ as outlined in statute.

Figure 2: BMP Applicant Prioritization Matrix

In which watershed is this farm located?	Champlain	Memphremangog	Connecticut	Hudson	Points
	30	20	15	10	
Is the water quality concern due to physical site constraints?			Yes 20	No 0	
What is the severity of the water quality concern that the project is proposing to mitigate?	Low Severity	Ex. in order of severity: No improved waste storage Clean water contamination Potential for discharge Failed waste storage facility	Low	0	
	↓		Moderate	10	
	High Severity		High	20	
Does this farm have adequate waste storage?			Yes 0	No 10	
Is this farm under VAAFM or ANR enforcement?			Yes 20	No 0	
Have the resource concern been documented in an inspection report?			Yes 15	No 0	
Does the farm have a business or viability plan?			Yes 10	No 0	
Does the proposed project present innovative opportunities?			Yes 10	No 0	
Has the farm received a BMP grant of similar size and scope?			Yes 0	No 10	
Is the project receiving technical assistance from additional source(s)?			Yes 15	No 0	
Is the project receiving funds from additional source(s)?			Yes 15	No 0	
Is this applicant willing and able to construct?			Yes 10	No 0	
Rate the project based on the complexity of construction?	Low Complexity	Gutters and swales Cast in place slabs Infiltration / treatment areas Geomembrane lining Pour in Place Concrete	Low	15	
	↓		Moderate	10	
	High Complexity		High	5	
Total			Possible	200	0

¹⁹ Farms may have a physical constraint, such as not being able to locate a waste storage facility 200 feet or more away from an open water source. The farm is then considered to have a physical constraint that does not allow it to meet a RAP requirement.

While the weighted method for basins and physical constraints used by AAFM in the BMP matrix is consistent with priorities outlined in statute, it does not give consideration to the Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan, which gives higher priority to certain areas in the Lake Champlain Basin.

The TMDL Phase 1 Implementation Plan identifies three areas in Lake Champlain as priority areas that are to be given increased education, outreach, and funding opportunities, targeted funding, and higher cost-share opportunities because they require that additional measures be implemented in order to achieve the Lake Champlain TMDL requirements.²⁰ These are the land areas that drain into the Missisquoi Bay, St. Albans Bay, and South Lake segments of the Lake Champlain Basin. (Appendix IV contains a map of the Lake Champlain segments that are subject to the TMDL.)

The 2016 tactical basin plan²¹ for Missisquoi Bay further identifies subwatersheds²² to focus on because those areas load more phosphorus than other areas within the Missisquoi Bay area. The tactical basin plan also contains a table that identifies catchments, which are subdivisions that make up a subwatershed, where the greatest overall phosphorus reductions can be achieved across all land uses including agricultural production areas.²³ The table highlights which of the catchments have the greatest potential phosphorus reductions in the production area land use sector.

The December 2017 tactical basin plan for Northern Lake Champlain, which includes the St Albans Bay lake segment, and the December 2017 tactical basin plan for South Lake Champlain also identify catchments with the greatest phosphorus reductions potential across all land uses including production areas. While these two plans do not highlight which of these catchments have the greatest potential phosphorus reductions in the production area land use sector, DEC has that data available.

Because AAFM's Applicant Prioritization Matrix does not provide additional weight to farms in the Lake Champlain Basin located in areas where the greatest phosphorus reduction can be achieved in the priority areas, AAFM may be directing limited resources to BMP projects that do not offer the greatest nutrient pollution reduction.

²⁰ Vermont Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan, dated September 15, 2016.

²¹ Tactical basin plans are water quality management plans that have an overall goal to establish and carry out strategies that will protect, maintain, enhance, or restore surface waters by directing regulatory, technical assistance, and funding to highest priority subwatersheds.

²² A subwatershed is a subdivision of a watershed. They generally range in size from 10,000 to 40,000 acres.

²³ Agricultural production areas are referred to as farmsteads in the table.

Objective 1b: No Direct Monitoring of Grantees' Maintenance of Projects; Maintenance Requirements Not Explicitly Communicated

AAFM does not directly monitor farmers' maintenance of conservation practices constructed in projects funded by the BMP program. If farmers do not maintain conservation practices, the State is at risk that it will not achieve the expected results (i.e., estimated nutrient pollution reductions) on its investments through the BMP program.

Even though the BMP program grant agreements require that the grantee operate and maintain the conservation practices for the designed lifespan,²⁴ the grant agreements we reviewed do not specify the lifespans of those practices. In addition, AAFM's grant agreements may only list the primary conservation practice and fail to include the supporting conservation practices, which may have different useful lifespans. For example, an AAFM grant for a waste storage facility may not list the access road to that facility that was also constructed. A waste storage facility has an estimated useful life of 15 years, while the access road has an estimated useful life of 10 years. Additionally, AAFM may not always use the standardized NRCS name for a conservation practice in the grant agreements, which hinders proper identification of a conservation practice's estimated useful life. Lastly, AAFM does not provide a grantee with an operation and maintenance plan to inform farmers of the activities necessary to keep a conservation practice functioning as intended. Therefore, it is unclear how AAFM can reasonably expect a farmer to understand their obligation for the maintenance of conservation practices and hold them accountable.

AAFM Not Monitoring Grantees' Maintenance of Conservation Practices

AAFM does not specifically monitor whether a farm maintains conservation practices funded by the BMP program. According to an agricultural engineer we interviewed, the farm inspection process is expected to identify water quality issues on a farm, and if no water quality issues are found during the inspection, then AAFM assumes that the farm is maintaining any conservation practices that were implemented with BMP program funding.²⁵

²⁴ This is the intended period of time that the conservation practice will function successfully with only routine maintenance.

²⁵ Large farm operations are to be inspected annually; medium farm operations are to be inspected every three years; certified small farm operations are to be inspected every seven years.

However, this is not equivalent to monitoring whether a conservation practice is being maintained in a manner that will keep it operating throughout its useful life. According to the agriculture water quality section chief, who oversees the group performing inspections, AAFM farm coordinators may not know there is a BMP project on a farm they are inspecting, and these coordinators do not determine as part of their inspection whether a farmer is maintaining a BMP program funded conservation practice throughout the useful life of that practice. Furthermore, AAFM does not have an established process to ensure that the farm coordinators, who conduct the inspections, review the conservation practices constructed under the BMP program, and there is no systematic process for the farm coordinators to provide feedback to the BMP program about the maintenance of these projects. Finally, AAFM does not have any written guidance about monitoring the maintenance of conservation practices funded by the BMP program.

The lack of monitoring by AAFM increases the risk that farmers are not maintaining conservation practices as required per the grant agreements, which could result in conservation practices not yielding the expected pollution reduction and the State, on behalf of the taxpayers, not receiving the full benefit of its investment.

Grant Agreements Lack Maintenance Information for Conservation Practices

AAFM requires that a farm maintain a conservation practice for the duration of that practice's useful life. Specifically, AAFM's BMP program grant agreements signed by farmers contain a clause that the grantee agrees to operate and maintain the conservation practices for their designed lifespans from the date these practices are installed.

However, the AAFM grant agreements we reviewed did not specify the useful life for the conservation practices installed. Conversely, for those agreements we reviewed where the farmers also received federal assistance through the federal Environmental Quality Incentives Program for construction of conservation practices, the federal agreements communicated useful life. Of the 30 grants we reviewed, 23 were for projects that received no federal assistance. None of the grant agreements for these projects contained information about useful life.

Furthermore, AAFM at times only lists a primary conservation practice and not the supporting practices in the BMP grants. An AAFM agricultural engineer explained that each conservation practice is like a building block of a larger system, which is the intended project. For the purposes of the grant

agreement, AAFM documents the system needed to correct an issue and generally does not list all the conservation practices that were involved in creating that system.

This is problematic because supporting conservation practices that underlie the larger system may have different useful lives, which impacts the farmers' obligations under the grant agreement. For example, when constructing a waste storage facility, AAFM may not always list the access road as one of the conservation projects within the grant, even though an access road to the storage facility is constructed as an essential part of the project. A waste storage facility has an estimated useful life of 15 years, while an access road has an estimated useful life of 10 years.

Additionally, AAFM does not always use the NRCS term for conservation practices in the BMP grants, which hinders identification of the correct estimated useful life of a given conservation practice. For example, AAFM uses "diversion" as a generic term that is short for "clean water diversion" and not as a specific conservation practice. AAFM applies the term to any practice designed to divert clean water from running over a barnyard and washing waste into a waterway, such as installing a gutter on a barn roof or constructing a channel across a slope to divert water.

However, NRCS is more specific in its terminology. It has a conservation practice titled "diversion" that means a channel generally constructed across a slope to divert water along that slope. The estimated useful life of this conservation practice is ten years. NRCS has another conservation practice called "roof runoff structure" that includes constructing gutters and other structures that will collect, control, and convey precipitation runoff from a roof. The estimated useful life of this conservation practice is 15 years.

AAFM also does not provide grantees with an operation and maintenance plan for the conservation practices constructed. NRCS publishes operations and maintenance plans which inform farmers of the activities necessary to keep a conservation practice functioning as planned. These plans also state the estimated useful life of the conservation practice.

Due to the lack of specificity regarding conservation practices and their useful lives in state-only grants and the lack of an operation and maintenance plan, it is unclear how AAFM can reasonably expect farmers to understand their obligation for the maintenance of that conservation practice and hold them accountable.

Objective 2: Phosphorus Reduction Impact of BMP Program Projects Not Calculated, but AAFM Is Taking Steps to Gather Data

AAFM is supposed to provide data needed to calculate the phosphorus reduction impact of BMP program projects to DEC, the lead agency for calculating nutrient pollution reduction impacts from state water quality projects, but they did not provide all of the data needed in FY2016 or FY2017. AAFM has not provided acreage data to DEC because the agency lacks a process to compile this data for projects in the pastureland area of a farm and has not finalized a method for calculating acres in the production area. Further, AAFM does not have efficiency factors for the conservation practices constructed in the production area and without these factors DEC cannot calculate phosphorus reductions for conservation practices constructed in the production area. Instead, AAFM will utilize an 80 percent efficiency factor²⁶ to calculate phosphorus reductions for production areas on farms that are determined by an AAFM inspection to be compliant with the RAPs and the farm's permit. However, AAFM has not developed a methodology to determine which farms are compliant. Therefore, AAFM is unable to estimate the phosphorus reduction impact of BMP program projects.

AAFM has taken steps to improve their tracking and accounting of water quality impacts resulting from the BMP program. For example, AAFM participated in an expert panel convened by the State in 2017 to assess the proposed approach to tracking and accounting for agricultural BMPs. In addition, AAFM is in the process of building a database that will store water quality project information, including BMP program project information, to better capture the data needed to estimate phosphorus and other nutrient pollution reduction impacts.

Acreage Data for Projects in Pastureland Not Tracked and Compiled for Reporting to DEC

AAFM has not provided DEC with the acreage data needed to calculate phosphorus reduction for fencing projects that exclude livestock from waterways in the pastureland area of a farm. As the lead agency, DEC calculates nutrient load reductions resulting from state clean water efforts and does so using their BMP Accounting and Tracking Tool (BATT). For BMP

²⁶ The Lake Champlain and Lake Memphremagog TMDLs assume that 80 percent of the baseload for agricultural production areas can be reduced by better production area management.

program projects, DEC relies on AAFM to provide the data needed to do the calculation.

AAFM has developed a spreadsheet that they provide to DEC for reporting data on agricultural clean water projects. The spreadsheet contains various data fields, including conservation practice,²⁷ the farm's location, the farm area where the practice is installed,²⁸ and acreage. However, AAFM has not populated the acreage field. In addition, for one of the grants we reviewed the AAFM incorrectly reported that the practice was constructed in the production area when it was constructed in the pastureland.

Information for the spreadsheet comes from an AAFM financial manager who tracks BMP program information, but this information does not include farm area or acreage. AAFM acknowledged that they have not been tracking acreage for pastureland projects but plans to track this data in the future.

Due to a lack of essential information from AAFM, DEC has not been able to calculate any water quality impacts of BMP grants that exclude livestock from waterways for FY2016 or FY2017.

AAFM Lacks Data Needed to Calculate Nutrient Pollution Reduction Impacts for Production Areas

AAFM does not have efficiency factors for any of the conservation practices constructed in the production area, and without this data DEC cannot calculate phosphorus reductions for conservation practices constructed in these areas. According to an AAFM employee responsible for providing BMP program data to DEC, the lack of efficiency factors is due to considerable variability in how farms manage those areas. An AAFM official explained that the variability of phosphorus inputs, such as the amount of feed and phosphorus in the feed, also adds to the complexity of developing efficiency factors in a production area.

While AAFM does not have efficiency factors needed to calculate the amount of phosphorus reduction resulting from conservation practices constructed in the production area as a result of the BMP program, the agency has devised a way to calculate phosphorus reductions for purposes of tracking reductions under the Lake Champlain and Lake Memphremagog TMDLs. AAFM has decided to calculate phosphorus reduction once a production area has been inspected by AAFM and determined to be compliant with RAPs and farm permits. The Lake Champlain and Lake Memphremagog TMDLs utilized 80

²⁷ The conservation practice is needed to identify the efficiency factor.

²⁸ Farm location and farm area are needed to ascertain the base load for a particular geographic area.

percent as a general efficiency assumption for the farm production area and AAFM has adopted this for use in its calculation.

However, at this time AAFM's inspection process does not result in a formal declaration of a farm's compliance with RAPs and permits. AAFM farm coordinators perform inspection and permit reviews, record their observations, and send them to an enforcement committee at AAFM for review. The committee considers whether a farm has compliance issues and determines whether an enforcement action is necessary, but it does not issue a formal conclusion on whether a farm is in compliance with the RAPs and its permit requirements. According to the agriculture water quality section chief, AAFM is working on a methodology for the enforcement committee to make these determinations in the future and a process to record those determinations.

AAFM has not finalized its method for determining the acreage of the production area but is considering the use of an analysis of the average size of a production area for large, medium, and small farms that was prepared by an NRCS staff member.

AAFM also must address how they plan to communicate information to DEC so that water quality impacts can be calculated for production areas for TMDL tracking purposes. Until then, the State will be unable to estimate phosphorus reduction impacts in the farm production area.

AAFM's proposed approach provides a way to calculate phosphorus reduction impacts necessary to meet the Lake Champlain and Lake Memphremagog TMDLs but does not provide information needed to assess the effectiveness of BMP program projects in production areas. AAFM acknowledged that the proposed approach may not be the best at showing the direct water quality impact of investments made in production areas and indicated that it's possible the agency will develop an approach that will more accurately reflect the water quality improvements made by specific BMP program projects. NRCS uses the 80 percent efficiency assumed in the TMDLs to estimate phosphorus reduction for projects it funds in the production area and AAFM could consider doing the same for all BMP production area projects.

Actions AAFM Has Taken or Is Taking Related to Calculating Water Quality Impacts

In 2017, the State convened an expert panel that included agricultural experts from federal and state government, the University of Vermont, and other non-governmental organizations. The State acknowledged to this panel

that there were challenges with tracking and accounting for agricultural BMPs in Vermont. The State requested that the expert panel review the State's proposed approach and concur or make recommendations to ensure the State's approach was technically and scientifically sound. The agricultural conservation practices reviewed by the expert panel were not limited to those funded by the BMP program.

The expert panel confirmed that an 80 percent efficiency should be applied to those production areas that are determined through the inspection process to be compliant with RAPs and farm permits. The expert panel also affirmed the use of a 55 percent efficiency for calculating the impact of excluding livestock from waterways in the pasture.

In addition to convening the expert panel, AAFM contracted with a vendor to develop a database that will capture location data for conservation practices in a consistent manner, including, but not limited to, those conservation practices implemented through the BMP program. The new database is intended to improve the accuracy and comprehensiveness in reporting and to be used by federal, state, and local partners to collaboratively track financial and technical assistance provided to farmers. The database will capture projects implemented through state and federal funding programs, along with some voluntary projects reported by technical assistance providers. AAFM plans to have this database live by July 2018. AAFM intends to use this database to report the conservation practices where they have provided funding so that DEC, through their BATT, can apply estimated nutrient pollution reduction efficiencies to those practices for which efficiencies are available.

Other Matters

Provisions of the BMP Rules Need Updating

There are several provisions in the BMP rules that do not align with statute or current practice. For example, the BMP rules give the same funding priority to farms located in the Lake Champlain and Lake Memphremagog basins, while statute has been amended to give priority to farms located in the Lake Champlain Basin over farms located in the Lake Memphremagog Basin.

Additionally, statute was amended in 2012 to state that applicants must pay at least 10 percent of the total project cost. However, the BMP rules state that the applicants must pay at least 15 percent of the total project cost. AAFM's current cost-share policy reflects the limit in statute and not the limits set forth in the BMP rules.

Other examples where the BMP rules need updating include the following:

- The BMP rules limit the farmers' responsibility for maintaining conservation practices to 10 years. However, many conservation practices have estimated useful lives that exceed 10 years, some doubling that amount, and the grant agreements require maintenance throughout the useful life. (See Appendix III for a list of conservation practices that are reimbursable under the BMP program and their associated estimated useful life.)
- The BMP rules state that BMP program applications filed on or before October 1 of each year shall be given priority for funding in the next calendar year, whereas, AAFM currently uses April 1st as the application deadline for priority funding.
- The BMP rules also refer to Accepted Agricultural Practices (AAPs) throughout the rules instead of RAPs. AAPs were the water quality regulations for farms before the State created the RAPs.

The BMP rules became effective in January of 1996, and AAFM has not made any amendments since then. The Lake Champlain Phosphorus TMDL Phase 1 Implementation plan, dated September 2016, indicates that the BMP rules need to be updated, which AAFM's general counsel acknowledged and noted that the agency plans to do so.

Other Compliance Issues

Good Standing with AAFM

Statute requires a farm to be in good standing with AAFM²⁹ at the time of the grant award, but AAFM has not included this requirement in its written grant procedures and did not document good standing in the grantee files we reviewed.

This requirement is not addressed in any of the following AAFM documents:

- Granting Plan--this is developed by each state granting agency to identify procedures it will follow to ensure that 1) grants are issued and monitored in accordance with state policy and 2) grant funds are spent by the grantee for their intended purpose. This plan must be

²⁹ "Good standing" means the applicant does not have an active enforcement violation that has reached a final order with the Secretary or is in compliance with all terms of a current grant agreement or contract with the AAFM.

approved by the Commissioner of Finance & Management or designee.

- Grant risk assessment form--this is a form developed by AAFM to determine if a potential grantee is categorized as high-risk and therefore should not receive a grant.
- Cost-share policy--this document outlines the maximum amount of a project's total cost that AAFM may fund through the BMP program. AAFM adopted this policy in October 2016.
- BMP Program and Description document--this document contained procedures for the BMP program including cost-share rates. The cost-share policy has superseded this document.

Good Standing with Tax Department

The grant agreement contains a provision³⁰ that the grantee certify under the pains and penalties of perjury that, as of the date the grant agreement is signed, the grantee is in good standing with respect to, or in full compliance with a plan to pay, any and all taxes due the State.³¹ Statute allows the Vermont Department of Taxes (VDT) to respond to requests to verify good standing. However, the Agency of Administration's Bulletin 5 Policy for Grant Issuance and Monitoring does not require verification of grantees' good standing and AAFM does not request that information from VDT.

The grant documents also contain a provision that the final payment under the grant agreement may be withheld if the Commissioner of Taxes determines that the grantee is not in good standing with respect to, or in full compliance with a plan to pay, any and all taxes due to the State of Vermont.

The SAO identified one instance where a grantee was not in good standing with the Commissioner of Taxes at the time they signed the grant agreement. VDT claimed part of the final grant payment as payment of the outstanding tax debt owed by this grantee. However, AAFM intervened and the grantee received their full grant payment.

Statute does not authorize VDT to divert grant payments for taxes owed,³² which explains why the final grant payment was made to the grantee. Statute

³⁰ This provision is standard language in Attachment C of the grants which contains all standard, mandatory, grant provisions. Bulletin 5, issued by the Secretary of the Agency of Administration, requires agencies to use this document on all agreements.

³¹ A person is in "good standing" with respect to any and all taxes payable if: (1) no taxes are due and payable and all returns have been filed; (2) the liability for any taxes due and payable is on appeal; (3) the person is in compliance with a payment plan approved by the Commissioner of Taxes.

³² 32 V.S.A. Chapter 103

does allow VDT to divert other payments for taxes owed such as payments for government contracts or payments for lottery winnings.

The Department of Finance and Management agreed that payments to grantees may not be diverted by VDT for the payment of taxes owed. It is not clear why the grant agreements contain a provision that says final payment may be withheld for those grantees that are not in good standing with VDT when statute does not provide the authority for such provision. This provision may not be altered without the approval of the Department of Finance and Management and the Attorney General's Office.

AAFM Does Not Check for Workers' Compensation Insurance Prior to Issuing Grants

According to AAFM officials, AAFM grant recipients are required to carry workers' compensation insurance in accordance with Vermont laws,³³ with respect to work performed under the grant, and to provide certificates of insurance to the agency. Some farms perform some of the project work funded by the BMP program. These farms may be required to carry workers' compensation insurance for the farm employees that performed the grant work. Nevertheless, AAFM has not been requesting proof of workers' compensation insurance prior to issuing BMP program grants.

Conclusions

AAFM provides grants to farmers for the construction of farm improvements designed to abate nonpoint source agricultural waste discharges to Vermont waters. Statute ranks Lake Champlain Basin as the highest priority waterway, and AAFM has developed a matrix to prioritize applications to the BMP program that gives greater weight to projects in that basin over other areas of the state. The State has further identified priority areas within this basin and identifies areas within those priority areas where the greatest phosphorus reductions can be achieved. However, AAFM's matrix does not give greater weight to applications in these areas within the Lake Champlain Basin. Therefore, AAFM may be directing limited state resources to BMP projects that do not offer the greatest nutrient pollution reduction.

Additionally, AAFM does not directly monitor farmers' maintenance of the conservation practices constructed under the BMP program grant agreements, and the agreements often do not contain the needed information on their useful lifespans. The lack of information makes it difficult for farmers to adhere to the terms of the agreement, and the lack of monitoring by AAFM

³³ 21 V.S.A. Chapter 9 contains the statutes for employer's liability and workers' compensation.

increases the risk that expected pollution reduction from conservation practices funded by the State will not be achieved.

Lastly, AAFM has not supplied DEC with the data DEC needs to calculate the clean water impacts of the BMP program. AAFM is taking steps to remedy this, but until then, AAFM is unable to provide meaningful outcome information for the BMP program.

Recommendations

We make the recommendations in Table 1 to the Secretary of the Agency of Agriculture, Food, and Markets.

Table 1: Recommendations and Related Issues

Recommendation	Report Pages	Issue
1. Revise the BMP Applicant Prioritization Matrix to allow additional weight to be given to 1) priority areas and 2) areas within those priority areas that have the greatest potential for phosphorus reduction.	p. 19	The Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan identifies three areas in Lake Champlain as priority areas for funding opportunities and other assistance. The State has data about which areas in these priority areas has the greatest phosphorus reduction potential. The matrix used by AAFM to prioritize grant selection does not provide additional weighting to priority areas on the Lake Champlain basin or to the areas within those priority areas that have the greatest potential for phosphorus reduction.
2. Document and implement a process to monitor farmers’ maintenance of conservation practices funded by the BMP program.	p. 20-21	AAFM does not have any written guidance about monitoring the maintenance of conservation practices funded by the BMP program and does not specifically monitor farmer’s maintenance of those practices.
3. List every conservation practice in the BMP grant documents and the estimated useful life of each, if known.	p. 21-22	AAFM at times only lists a primary conservation practice and not the supporting practices in the BMP grants. Per the grant agreements, farmers are required to maintain a conservation practice for the duration of that practice’s useful life. However, the grant agreements we reviewed did not list every conservation practice and did not specify useful life.
4. Change AAFM’s naming conventions for conservation practices documented in the grant agreements to match precisely the NRCS names.	p. 22	AAFM does not always use the NRCS term for conservation practices in the BMP grants, which hinders identification of the correct estimated useful life of a given conservation practice.
5. Provide operation and maintenance plans, such as the plans published by NRCS, to farmers for the conservation practices funded by BMP program grants.	p. 22	NRCS publishes operations and maintenance plans which inform farmers of the activities necessary to keep a conservation practice functioning as planned. However, AAFM does not provide grantees with an operation and maintenance plan for the conservation practices constructed.

Recommendation	Report Pages	Issue
6. Track the acreage in the pastureland where livestock is excluded from a waterway as a result of BMP program grants and communicate this data to DEC.	p. 23-24	AAFM acknowledged that they have not been tracking acreage for pastureland projects but plan to track this data in the future. DEC needs the acreage data to calculate phosphorus reduction for fencing projects that exclude livestock from waterways in the pastureland area of a farm.
7. Develop a methodology to be used by the enforcement committee to determine and document whether a farm's production area complies with the RAPs and AAFM's farm permit.	p. 24-25	AAFM has decided to calculate phosphorus reduction once a production area has been inspected by AAFM and determined to be compliant with RAPs and farm permits. The committee determines whether a farm has compliance issues and if an enforcement action is necessary, but it does not issue a formal conclusion on whether a farm is in compliance with the RAPs and its permit requirements.
8. Finalize a method for determining production area acreage for purposes of calculating phosphorus reduction impacts for TMDL tracking.	p. 25	AAFM has not finalized its method for determining the acreage of the production area but is considering the use of an analysis of the average size of a production area for large, medium, and small farms.
9. Develop a process to communicate to DEC the enforcement committee's determination of whether a farm's production area complies with the RAPs and AAFM farm permit.	p. 25	AAFM has decided to calculate phosphorus reduction once a production area has been inspected by AAFM and determined to be compliant with RAPs and farm permits. AAFM must address how they plan to communicate this information to DEC so that water quality impacts can be calculated for production areas for TMDL tracking purposes.
10. Adopt the NRCS approach to estimating phosphorus reduction for BMP program projects in production areas or adopt an alternative methodology.	p. 25	AAFM's proposed approach to use AAFM farm inspections provides a way to calculate phosphorus reductions for TMDL tracking but does not provide information needed to assess the effectiveness of BMP program projects in production areas. NRCS uses the 80 percent efficiency assumed in the TMDLs to estimate phosphorus reduction for projects it funds in the production area.
11. Expediently update the BMP rules.	p. 26-27	There are several provisions in the BMP rules that do not align with statute or current practice.
12. Modify the agency's granting plan to include verification that a BMP program grant applicant is in good standing with AAFM and develop a method to document the verification in the grant file.	p. 27	Statute requires a farm to be in good standing with AAFM at the time of the grant award, but AAFM has not included this requirement in its written grant procedures and did not document good standing in the grantee files we reviewed.
13. Seek the Department of Finance and Management and the Attorney General's Office advice regarding whether the grant provision that allows VDT to withhold final grant payments to pay taxes owed should be removed from BMP program grant agreements.	p. 28-29	It is not clear why the grant agreements contain a provision that says final payment may be withheld for those grantees that are not in good standing with VDT when statute does not provide the authority for such action. This provision may not be altered without the approval of the Department of Finance and Management and the Attorney General's Office.

Recommendation	Report Pages	Issue
14. Request workers compensation insurance certificates from those farmers who perform work on BMP program project.	p. 29	Farms may be required to carry workers’ compensation insurance for the farm employees that performed the grant work. Nevertheless, AAFM has not been requesting proof of workers’ compensation insurance prior to issuing BMP program grants.

Management’s Comments and Our Evaluation

We sent AAFM a draft of this report for comment, and on April 30, 2018, the Secretary of the Agency of Agriculture, Food, and Markets provided comments on that draft. The Secretary’s response is reprinted in Appendix VI along with our evaluation of these comments (see pages 43 - 67).

The Secretary stated that the Agency will take this audit as an opportunity to revise key areas in their program. However, the Secretary disagreed with our characterization of many of the report findings. For example, we identified that AAFM is not providing DEC with the necessary data to calculate phosphorus reduction impacts for the BMP program. In his comments, the Secretary noted that AAFM used to have a system that calculated phosphorus reductions for the BMP program, which is no longer used, and thought that our report indicated they never had a system. Our report focused on FY2016 and FY2017, as specified in the Scope and Methodology section of the draft report, and whether AAFM collected data and measured the impact of BMP program projects during that period, which they did not. We added a statement in both the introduction and highlights section of this report that our audit focused on FY2016 and FY2017 for clarity.

The Secretary indicated that AAFM can implement some of our recommendations and will implement others. There were a few recommendations that the Secretary insufficiently addressed. See Appendix VI for more detail on our evaluation of the Secretary’s comments.

Appendix I

Audit Scope and Methodology

To gain a general understanding of the background of agricultural clean water requirements we reviewed statute, the RAPs, AAFM's Revised Secretary's Decision, and the Stipulation of the Parties for Remand pertaining to that revised decision. We obtained and reviewed memorandums of understanding between AAFM and other entities related to agricultural water quality. We reviewed the Statewide Surface Water Management Strategy. In addition, we reviewed the following TMDLs:

- Phosphorus TMDLs for Vermont Segments of Lake Champlain, June 2016
- Phosphorus TMDL for Lake Carmi, October 2008
- Lake Memphremagog Phosphorus TMDL, September 2017
- Phosphorus TMDL for Ticklenaked Pond, October 2009

To gain an understanding of the resources allocated to the BMP program, we reviewed capital appropriations from FY1996 to FY2017. We also obtained from AAFM the cost of their agricultural engineers and contracted engineers that worked on BMP program projects in FY2016 and FY2017.

To gain an understanding of the compliance requirements for state grants we reviewed Bulletin 5, *Policy for Grant Issuance and Monitoring*, effective December 26, 2014, and Bulletin 5 supplement *Granting Plan Guidelines*. We reviewed the Vermont Department of Finance and Management's Internal Control Standards, *A Guide for Managers*. We also consulted with officials at the Department of Finance and Management and AAFM's general counsel.

To gain a broader understanding of the landscape of agricultural water quality improvement programs and potential challenges associated with their administration, we reviewed audit reports pertaining to the federal Environmental Quality Incentives Program issued by the United States Government Accountability Office and the United States Department of Agriculture Office of Inspector General.

We obtained and reviewed a listing from AAFM of all conservation practices that were eligible for reimbursement under the BMP program and reviewed NRCS documents pertaining to those practices.

To address Objective 1a, we reviewed statute, BMP rules, AAFM policies, the Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan, and the tactical basin plans for Missisquoi Bay, Northern Lake Champlain Direct Drainages, and South Lake Champlain to identify what they stated about BMP project priorities. We interviewed AAFM personnel to gain an understanding of how AAFM prioritized BMP program grants and obtained and reviewed

Appendix I

Audit Scope and Methodology

AAFM's BMP Applicant Prioritization Matrix. We reviewed AAFM process flowcharts outlining the granting process for AAFM's BMP grant program.

We obtained a listing of BMP program grants and filtered that list to show only those grants that had a start date between 7/1/2015 and 6/30/2017, which corresponds to FY2016 or FY2017. To verify the completeness of this list we compared the grants in this list to grant information contained in VISION, which is the State's primary centralized financial system. We used information from AAFM to determine which major drainage basin the farms that received those grants were located. We also judgmentally selected 30 grants from that list and reviewed those grant files for documentation evidencing how AAFM prioritized the grant applications.

To address Objective 1b, we inquired of AAFM personnel how they determined the useful life of a conservation practice and whether those conservation practices were monitored. We reviewed NRCS documents that specified useful life for given conservation practices. We reviewed the grants in our sample to identify whether the grants stated that farmers must maintain the conservation practices throughout the useful life of those practices and whether the grants specifically stated the useful life of those conservation practices.

We also obtained AAFM farm inspection templates to determine whether those forms included an assessment of whether a farm is maintaining a conservation practice throughout its useful life. We inquired of the agriculture water quality section chief whether AAFM has a systematic approach for farm coordinators to review the conservation practices constructed under the BMP program.

To address Objective 2, we interviewed AAFM personnel to understand the information AAFM is collecting about the nutrient pollution reduction impact of BMP projects and how they are recording that information. We inquired about the database AAFM intends to use for tracking financial and technical assistance to farmers. We reviewed the grant files in our sample to determine if there was any documentation in those files that contained estimated nutrient pollution reduction impacts associated with those projects.

We interviewed a nonpoint source coordinator at DEC to determine how DEC calculates phosphorus reduction impacts from clean water projects and what information AAFM provided to DEC to perform those calculations. We reviewed the Vermont Clean Water Initiative 2016 Investment Report, the Vermont Clean Water Initiative 2017 Investment Report, AAFM's 2015 and 2016 Annual Reports, and AAFM's FY2017 Annual Report on Financial and Technical Assistance for Agricultural Water Quality to determine whether

Appendix I

Audit Scope and Methodology

AAFM has reported the impact of BMP program projects on phosphorus reductions.

We reviewed NRCS resource assessment and watershed level plans for Vermont and results reports associated with those plans to identify whether the NRCS was measuring and reporting the phosphorus reduction impacts of conservation practices funded by the federal government. We interviewed an NRCS staff person to identify how the NRCS measured phosphorus reduction impacts for conservation practices constructed in the production area.

We performed our audit between July 2017 and April 2018, and included visits to the Agency of Agriculture, Food, and Markets headquarters in Montpelier, Vermont and their field office located in Williston, Vermont.

We conducted this performance audit in accordance with generally accepted government auditing standards, which require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Appendix II Abbreviations

AAFM	Agency of Agriculture, Food, and Markets
AAPs	Accepted Agricultural Practices
BATT	BMP Accounting and Tracking Tool
BMP	Best Management Practices
CSA	Critical Source Area
DEC	Department of Environmental Conservation
EPA	Environmental Protection Agency
FY	Fiscal Year
NRCS	Natural Resources Conservation Service
RAPs	Required Agricultural Practices
SAO	State Auditor's Office
TMDL	Total Maximum Daily Load
VDT	Vermont Department of Taxes
VISION	Vermont Integrated Solution for Information and Organizational Needs
V.S.A.	Vermont Statutes Annotated

Appendix III

Conservation Practices Eligible for Reimbursement Under the BMP Program

Table 2: NRCS Conservation Practices that are Eligible for Reimbursement Under the BMP Program

Conservation Practice Name	Definition	Estimated Useful Life
Access Control	The temporary or permanent exclusion of animals, people, vehicles, and/or equipment from an area.	10 years
Access Road	An access road is an established route for equipment and vehicles.	10 years
Anaerobic Digester	A component of a waste management system that provides biological treatment in the absence of oxygen.	Not provided in NRCS Vermont documents we reviewed
Animal Mortality Facility	An on-farm facility for the treatment or disposal of animal carcasses due to routine mortality.	15 years
Building Envelope Improvement	Modification or retrofit of the building envelope of an existing agricultural structure.	10 years
Composting Facility	A structure or device to contain and facilitate an aerobic microbial ecosystem for the decomposition of manure and/or other organic material into a final product sufficiently stable for storage, on farm use and application to land as a soil amendment.	15 years
Constructed Wetland	An artificial ecosystem with hydrophytic vegetation for water treatment.	Not provided in NRCS Vermont documents we reviewed
Critical Area Planting	Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on site that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal seeding/planting methods.	10 years
Diversion	A channel generally constructed across the slope with a supporting ridge on the lower side.	10 years

Appendix III

Conservation Practices Eligible for Reimbursement Under the BMP Program

Conservation Practice Name	Definition	Estimated Useful Life
Drainage Water Management	The process of managing water discharges from surface and/or subsurface agricultural drainage systems.	Not provided in NRCS Vermont documents we reviewed
Fence	A constructed barrier to animals or people.	20 years
Grade Stabilization Structure	A structure used to control the grade in a natural or constructed channel.	15 years
Heavy Use Area Protection	Used to stabilize a ground surface that is frequently and intensively used by people, animals, or vehicles.	10 years
Lined Waterway or Outlet	A waterway or protected outlet section having an erosion-resistant lining of concrete, stone, synthetic turf reinforcement fabrics, or other permanent material.	15 years
Livestock Pipeline	A pipeline and appurtenances installed to convey water for livestock or wildlife.	20 years
Mulching	Applying plant residues or other suitable materials produced off site, to the land surface.	1 year
Obstruction Removal	Removal and disposal of buildings, structures, other works of improvement, vegetation, debris, or other materials.	10 years
On-Farm Secondary Containment Facility	A permanent facility designed to provide secondary containment of oil and petroleum products used on-farm.	15 years
Phosphorous Removal System	A system installed to intercept subsurface (tile) flow, ground water or surface runoff flow, and reduce the concentration of phosphorus.	10 years
Pond	A pond is a water impoundment made by constructing an embankment, by excavating a dugout, or by a combination of both.	20 years

Appendix III

Conservation Practices Eligible for Reimbursement Under the BMP Program

Conservation Practice Name	Definition	Estimated Useful Life
Pond Sealing or Lining, Compacted Soil Treatment	A liner for an impoundment constructed using compacted soil with or without soil amendments.	15 years
Pond Sealing or Lining, Flexible Membrane	A manufactured hydraulic barrier consisting of a functionally continuous layer of synthetic or partially synthetic, flexible material.	20 years
Pond Sealing or Lining, Concrete	A liner for an impoundment constructed using reinforced or nonreinforced concrete.	15 years
Pumping Plant	A facility that delivers water at a designed pressure and flow rate. Includes the required pump(s), associated power unit(s), plumbing, appurtenances, and may include on-site fuel or energy source(s), and protective structures.	15 years
Roof Runoff Structure	A structure that will collect, control, and convey precipitation runoff from a roof.	15 years
Roofs and Covers	A rigid, semirigid, or flexible manufactured membrane, composite material, or roof structure placed over a waste management facility, agrichemical handling facility, or an on-farm secondary containment facility.	10 years
Sediment Basin	A basin constructed with an engineered outlet, formed by constructing an embankment, excavating a dugout, or a combination of both.	20 years
Spring Development	Collection of water from springs or seeps to provide for livestock and wildlife.	20 years
Stream Crossing	A stabilized area or structure constructed across a stream to provide a travel way for people, livestock, equipment, or vehicles.	5 years
Structure for Water Control	A structure in a water management system that conveys water, controls the direction or rate of flow, maintains a desired water surface elevation or measures water.	20 years
Subsurface Drain	A conduit installed beneath the ground surface to collect and/or convey excess water.	20 years

Appendix III

Conservation Practices Eligible for Reimbursement Under the BMP Program

Conservation Practice Name	Definition	Estimated Useful Life
Trails and Walkways	A trail is a constructed path with a vegetated or earthen surface. A walkway is a constructed path with an artificial surface. A trail/walkway is used to facilitate the movement of animals, people, or off-road vehicles.	10 years
Underground Outlet	A conduit or system of conduits installed beneath the surface of the ground to convey surface water to a suitable outlet.	20 years
Vegetated Treatment Area	An area of permanent vegetation used for agricultural wastewater treatment.	10 years
Waste Facility Closure	The decommissioning of facilities, and/or the rehabilitation of contaminated soil, in an environmentally safe manner, where agricultural waste has been handled, treated, and/or stored and is no longer used for the intended purpose.	15 years
Waste Separation Facility	A filtration or screening device, settling tank, settling basin, or settling channel used to partition solids and/or nutrients from a waste stream.	15 years
Waste Storage Facility	An agricultural waste storage impoundment or containment made by constructing an embankment, excavating a pit or dugout, or by fabricating a structure.	15 years
Waste Transfer	A system using structures, pipes or conduits installed to convey wastes or waste byproducts from the agricultural production site to storage/treatment or application.	15 years
Waste Treatment	The use of unique or innovative mechanical, chemical, or biological technologies that change the characteristics of manure and agricultural waste.	10 years
Water and Sediment Control Basin	An earth embankment or a combination ridge and channel constructed across the slope of minor watercourses to form a sediment trap and water detention basin with a stable outlet.	10 years
Watering Facility	A means of providing drinking water to livestock and wildlife.	10 years

Appendix IV

Lake Segments Subject to Vermont's TMDL

Figure 3: Map of the Lake Champlain Segments Subject to Vermont's TMDL

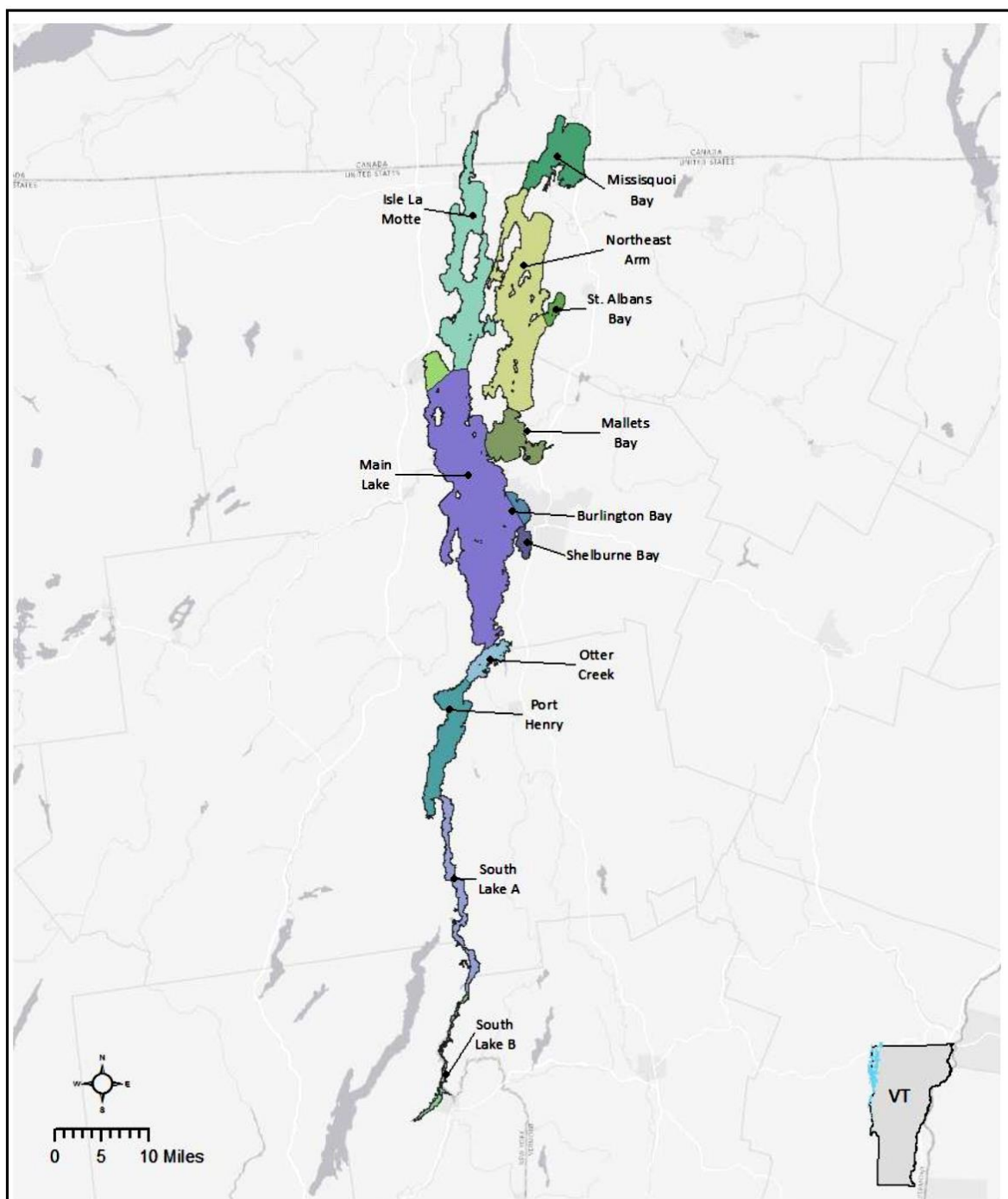


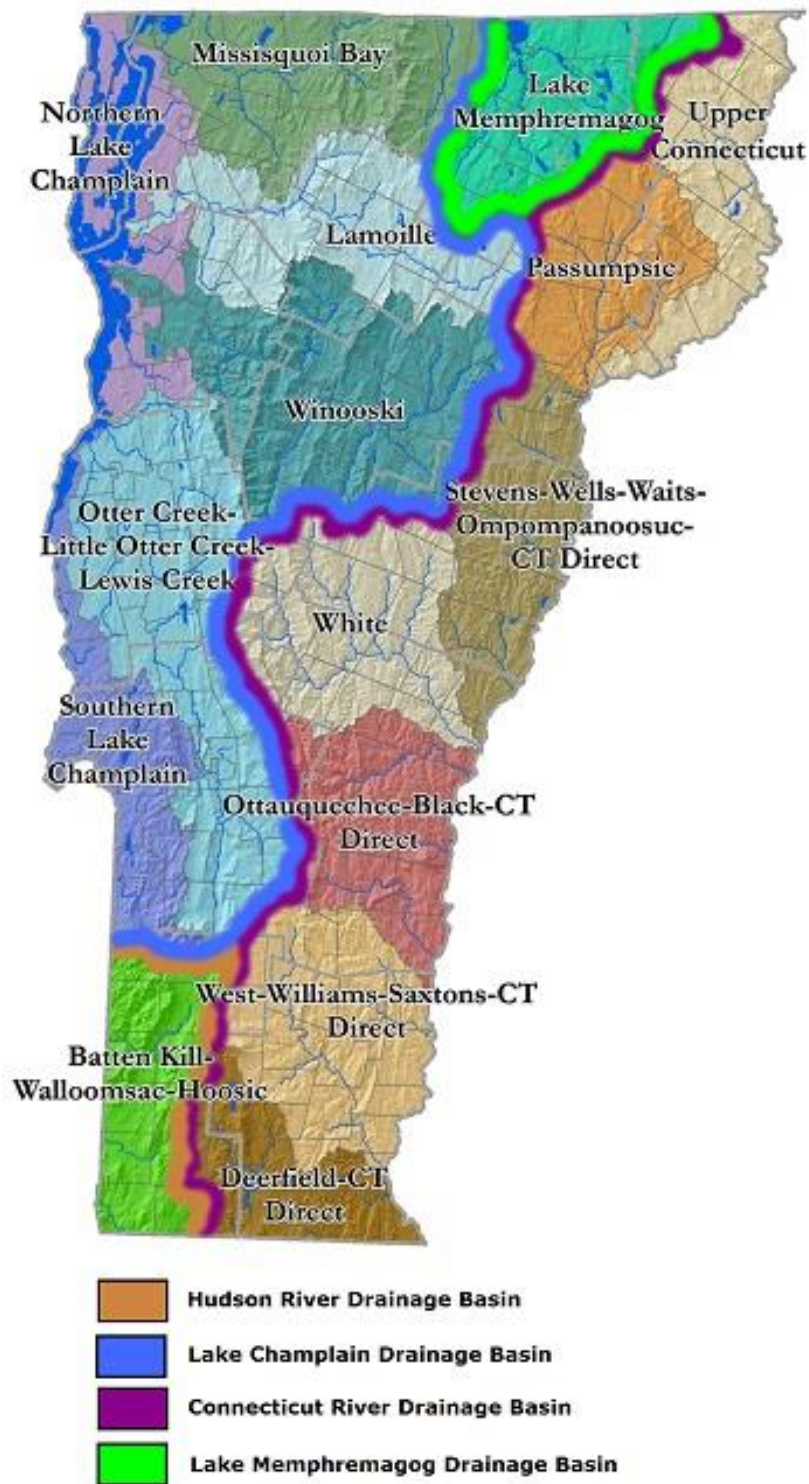
Figure 1: Lake Champlain Segments Subject to Vermont Phosphorus TMDLs. (LCBP 2012).

Data Source: ESRI, TetraTech.



Appendix V Vermont's Major Drainage Basins

Figure 4: Map of Vermont's Major Drainage Basins and Associated Tactical Basins



Appendix VI

Reprint of Management’s Comments and SAO’s Evaluation

The following is a reprint of Secretary Tebbett’s response³⁴ to a draft of the audit report we provided to AAFM for comment and our evaluation of those comments. In some cases, the Secretary’s comments were in conflict with our findings or did not address our recommendations. We amended the report based on information AAFM provided us about critical source areas (CSAs). We also amended the report in certain areas to provide clarifications, but these clarifications did not change the report findings and conclusions. Because of the number of disagreements AAFM had with our findings and conclusions, we incorporated our evaluation of their comments within the reprint of AAFM’s comments. SAO comments are within highlighted boxes and are labeled “SAO Comment.”



Agency of Agriculture, Food & Markets
Office of the Secretary
116 State Street
Montpelier, VT 05620
www.VermontAgriculture.com

[phone] 802-828-2430
[fax] 802-828-2361

December 1, 2017

Douglas R. Hoffer, Vermont State Auditor
132 State Street
Montpelier, VT 05633-5101

Re: Agency of Agriculture, Food and Markets’ Best Management Practices Program Audit

Dear Mr. Hoffer,

The Agency of Agriculture, Food & Markets (AAFM) has reviewed the results of the Auditor’s draft and offers the following Management Response. The Agency thanks the Auditor for taking the time to learn about our programs and efforts, and the professionalism of the staff who conducted the audit analysis and reporting.

The Agency has provided suggested revisions, comments in response to the draft and explanations or clarifications of details that provide the appropriate context to the reader. These remarks are provided in the order the report is drafted for ease of reference. The Agency will certainly take this audit as an opportunity to revise key areas in our program and appreciate the review being done in the beginning stages of implementing the new Lake Champlain TMDL, allowing us an opportunity to make improvements early on.

³⁴ The December 1, 2017 date on the Secretary’s response is incorrect. We received his response on April 30, 2018.

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Reprint of Management's Comments and SAO's Evaluation

Management Response

Executive Summary

The Agency of Agriculture, Food & Markets has implemented a very successful Best Management Practice program for several decades. Currently, the program has allocated approximately \$26 million to on farm conservation practices at a rate of 40 individual grants covering 100 practices annually. The audit did not identify any negative findings on the quality of the work for the specific practices implemented from an engineering or financial aspect, as our staff work very hard to make sure the work and documentation of that work is well done. The main concerns identified in this audit cover how we prioritize selection of grantees into a few key watersheds and whether we provide sufficient documentation to inform and follow up that farmers understand how to operate and maintain the practices. From a contracting perspective, there were items identified in the audit that are beyond the Agency's ability to change (requires Department of Finance and Management changes to the standard Attachment C for grants), items such as the nomenclature used for the practices in the agreements and then practices like checking on 'good standing for water quality' that are performed but not documented in the BMP file.

SAO Comment 1:

The scope of this audit did not include an assessment of the quality of work for specific practices implemented from an engineering or financial aspect.

When it comes to prioritizing grants, the statutory requirement is that the Agency prioritize the 4 major watersheds, Lake Champlain, Lake Memphremagog, Connecticut River and the Hudson River in that order. The Agency has always made sure those priorities are covered, however the audit didn't look at the larger program accomplishments in accordance with statute. What the audit assessed was whether the Agency is further prioritizing to make sure Missisquoi Bay, St. Albans Bay, and South Lake watersheds were given more weight in the ranking criteria from the Lake Champlain TMDL. The Agency explains below that we changed our entire programming, including how we work with partners and where we perform our inspections, to drive the applications in these areas. So, while the ranking criteria was not explicit in highlighting these watersheds, the Agency went above and beyond to create an entire programming effort to ensure more applications came from these areas.

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Reprint of Management's Comments and SAO's Evaluation

See our comment 2 below

See our comment 3 below

The Agency would like to share with the readers that we have been tracking every project implemented since the beginning of the program, including the characteristics of the project details. In order to quantify the estimated phosphorus reductions, the Agency for years used a method developed by the USDA NRCS known as Croft's Coefficients. This method was phased out a few years ago, but certainly could still be run on any of the practices implemented since we stopped calculating that way. The reason for not reporting Croft's Coefficients is that the Agency is moving into a new system of tracking. This audit pointed out that 2 out of 100 practices are not fully transitioned over to this new method of tracking. The Agency wants the reader to understand that these 2 practices are not without effort and will be addressed as the Agency has engaged the best scientists in the region to assist in making sure the best estimation method is created, which is known as the Agricultural Expert Panel. Many of these kinds of nutrient estimations have varying ways they can be determined, and the Agency felt it was important to understand how other state's are doing this work and to select the best method.

SAO Comment 2:

Our audit was limited to FY2016 and FY2017, as described in the scope and methodology section, and we found that the AAFM did not provide DEC with data needed to estimate phosphorus reductions for conservation practices funded by the BMP program in these years. To make this clearer, we have added a statement to indicate the audit focused on FY2016 and FY2017 in the Introduction and Highlights sections of the report.

Two AAFM personnel involved in compiling data for BMP program grants informed us that the previous method the Secretary refers to had inaccurate results. One of those personnel explained to us that the method overstated phosphorus reduction impacts.

SAO Comment 3:

The Secretary has mischaracterized our finding regarding the agency's ability to estimate phosphorus reductions. We did not state that two of one hundred practices were not fully transitioned to a new method of tracking. Rather, we found that in FY2016 and FY2017 AAFM did not provide DEC with the data necessary to estimate phosphorus reduction impacts for any of the 41 conservation practices implemented in the production area or pastureland area of a farm that are eligible for reimbursement by the BMP program. See Appendix III for the list of conservation practices AAFM indicated are eligible for reimbursement under the BMP program.

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The audit points out that the Agency doesn't have a prescribed method for documenting BMP operation and maintenance. However, it is important for the reader to understand the nature of the work the Agency performs. We visit farms daily throughout the year, and last year that resulted in 978 visits to farms specifically assessing whether conservation practices were needed and if they were being maintained. The results of these visits are documented in inspection reports, so it isn't that the Agency is not tracking this information. It just isn't as easy to extract this information to tie back to the BMP program, which we will improve upon. We do feel that our inspection process and our consistent presence on the farm is much better at following up on practices than a standard practice audit would entail, which is usually a much smaller number of spot checks. Additionally, the time spent with a farmer upfront and after a project is implemented is more likely to result in the farmer understanding how to operate and maintain the practice as compared to handing them a paper explaining it at the time they sign the BMP agreement. We will begin sending these documents as outlined in the audit, however the one-on-one in person explanation is an area we will continue to make a priority.

SAO Comment 4:

According to the agriculture water quality section chief, who oversees the group performing inspections, AAFM farm coordinators may not know there is a BMP project on a farm they are inspecting, and these coordinators do not determine as part of their inspection whether a farmer is maintaining a BMP program-funded conservation practice throughout the useful life of that practice. We have added this information to the report on page 21 to clarify why the inspection process is not equivalent to monitoring grantees' maintenance of conservation practices over their useful lives.

Because of this, we concluded that AAFM does not have a systematic approach for reviewing whether farmers are maintaining the conservation practices installed under the BMP program over their useful lives, and we recommended that AAFM document and implement such a process. This does not preclude AAFM from incorporating this into their inspection process.

There are other details provided below in the audit which the reader can review. However, we just wanted to make sure a few of these items were highlighted upfront for the reader. If anyone has any questions or concerns about how the BMP program is operated, the Agency is more than happy to spend time explaining what and how we operate.

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Reprint of Management's Comments and SAO's Evaluation

Detailed Summary

1. **Subtitle:** The Agency has prioritized grants based on statutory requirements dating back to 1996 and feels it has met those requirements consistently. There was a revision to the program prioritization in Act 64 of 2015 and the Agency began developing a new process in 2016, with continued improvements in 2017 and 2018. The Agency also feels it has sufficiently met those requirements and internally supports continued improvement as technology and information allow for advances. The title as drafted suggests the Agency has not consistently met the prior statutory requirements for prioritization and is not actively working on improvements to a new statutory requirement. The title also does not report that the program is and has been effective in implementing projects that are proven by the USDA Agricultural Research Service as effective practices for sediment and nutrient reductions when applied on farms. A preferred title would be: *“The Agency of Agriculture, Food & Markets Implements Successful Water Quality Improvement Practices But Could Continue to Improve Its Project Prioritization Tool and Phosphorus Reduction Tracking Mechanisms.”*

SAO Comment 5:

Our title reflects the findings in the report. Conservation practices implemented using BMP program funding are intended to reduce phosphorus loading. The agency doesn't have or hasn't provided the data to DEC to calculate estimated phosphorus reductions, so the agency does not know the phosphorus reduction impact of its BMP-funded projects. It's not clear how the Secretary is assessing success, but we believe it is not possible to assess success without information about the impact of implementing these practices.

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See our comment
4 on page 46

2. **Page 2, Table of Contents Title:** *“Objective 1b: No Direct Monitoring of Grantees’ Maintenance of Projects; Maintenance Requirements Not Explicitly Communicated”*. This title is misleading the reader into believing there is no oversight of projects after the Agency supports their implementation, which is not true. There is direct monitoring of many of the implemented projects through the implementation of additional BMP projects on the same farms in future years and through the Agency’s on-farm inspection process. Last year the Agency conducted 978 such visits, which is a very high number of “spot checks” when considering a monitoring program. While there currently is not a specific prescribed policy on how to perform operation and maintenance monitoring - and we will address that finding in future program policy revision – the Agency is actively on farms visiting and observing the operation and maintenance of these previously implemented practices. The USDA performs spot checks annually on sites to follow up on their EQIP program, which in many instances includes practices implemented through the Best Management Practices (BMPs) Program. As for providing documentation on the required operation and maintenance of practices, every USDA NRCS contract includes all operation and maintenance documents for each practice. While the Agency agrees these documents should be independently provided to grantees as recommended by this audit, all projects in the BMP program are not completely without the farm being provided operation and maintenance information and follow-up assessment. The Agency would like to suggest an alternative title that more appropriately captures the findings: *“Need to Develop A Policy on Monitoring of Grantees’ Maintenance of Projects; Maintenance Requirements Not Consistently Communicated”*.

SAO Comment 6:

Fifty-six of the sixty-four grants (88 percent) with start dates in FY2016 or FY2017 were for state-only projects. Twenty-three of the thirty grants (77 percent) we reviewed for FY2016 and FY2017 were for state-only projects that did not receive any NRCS funding, and there is no evidence in the grant files that operations and maintenance plans were provided for these projects. For the other seven grants we reviewed where farmers also received NRCS funding, the files did not contain a copy of an operation and maintenance plan. Because the scope of our audit was the State’s BMP program, we did not obtain and review NRCS grant files.

3. **Page 2, Table of Contents Title:** *“Objective 2: Phosphorus Reduction Impact of BMP Program Projects Not Calculated, but AAFM Is Taking Steps to Gather Data”*. The Agency has been calculating phosphorus reductions for several decades. Currently, the Agency is working on improving these methodologies given new science and information, and while there are certain practices where there are challenges in calculating phosphorus reductions - and the science behind the estimations is not as robust as others – the Agency is working with an expert panel to ensure accurate reduction estimates are made.. However, it is important to note that this is a challenge for all states working with agricultural BMPs, not just Vermont. The Agency would like to suggest an alternative title that more appropriately captures the findings: *“Phosphorus Reduction Impact of BMP Program Calculations Need Improvement, and AAFM is Taking Steps to Gather Data”*.

SAO Comment 7:

Appendix I, included with the draft report, contains our audit scope and methodology and indicates that the scope of our audit was limited to FY2016 and FY2017. To clarify this, we have added this point to the Introduction and Highlights sections of our report.

The title of this section reflects the facts and conclusion in the section – that AAFM did not provide DEC with the data necessary to calculate phosphorus reduction impacts resulting from BMP program projects and that no phosphorus reduction impact was calculated.

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- See our comment
8 below
- See our comment
9 below
4. **Page 3 First Paragraph**, the Agency suggests the following edits - underlined below - to make the statement more accurate from a scientific perspective and to align with the Lake Carmi TMDL.
“Phosphorus can stimulate the growth of algae. When it is excessive, it can turn lakes and ponds water green and makes them unsuitable at times for recreational uses or drinking. Algae blooms have been occurring in many Vermont lakes, such as Lake Carmi, for nearly 200 years, however since the 1940’s the intensified land use may have exacerbated the occurrence and intensity of blooms in some waters. Lake Carmi was closed to swimming for months this past year because of algae blooms. Algae blooms have also occurred in areas of Lake Champlain.”

SAO Comment 8:

We did not use the Secretary’s wording because our wording is consistent with the Lake Champlain and Lake Carmi phosphorus TMDLs and the Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan.

The phosphorus TMDL for Lake Champlain states that Lake Champlain is impaired by the nutrient phosphorus, which causes algal blooms and obnoxious odors, and leads to low dissolved oxygen concentrations, impaired aquatic life, and reduced recreational use.

The phosphorus TMDL for Lake Carmi states that excessive amounts of phosphorus in the lake feed algae growth to such an extent that problem conditions are present.

The Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan states phosphorus pollution is the greatest threat to clean water in Lake Champlain. Phosphorus is a nutrient that stimulates excessive growth of algae in the lake, turning the water green. In excessive amounts, algae can impair recreational uses, aesthetic enjoyment, the taste of drinking water, and the biological community. In some cases, algal blooms - particularly cyanobacteria (blue-green algae) - can produce toxins that harm animals and people.

SAO Comment 9:

The underlined sentence is superfluous. The Lake Champlain and Lake Carmi phosphorus TMDLs require that phosphorus levels be reduced to eliminate/control algal blooms.

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5. **Page 3, Third Paragraph.** The Agency would like to clarify the paragraph with the underlined edits pertaining to the type of assistance provided as the Water Quality Division does not provide marketing or other promotional support to farms. *"The Vermont Agency of Agriculture, Food, and Markets (AAFM) is the lead agency for addressing agricultural nonpoint source pollution of state waterways. In addition to inspecting farms, AAFM also provides technical and financial assistance to farmers for water quality conservation practice implementation."*

SAO Comment 10:

We added AAFM's underline to our report for clarification.

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6. **Page 5, Objective 1a Finding.** The Agency would like to clarify the paragraph with the underlined edits regarding the prioritization methods for selecting projects. The Agency removed the Critical Source Area references as this methodology is for identifying agronomic or field practices, which are typically not eligible practices in the BMP program, and therefore the prioritization for CSAs is not fully applicable to the BMP program. Additionally, though implementing projects in key areas is important, there can be, and often are, projects outside of these areas which may contribute significant pollution and therefore rank high for implementation support. The Agency would like to acknowledge that not all projects in key areas are “providing the greatest nutrient pollution reduction potential” as compared to other projects and other watersheds. Suggested edits include: “Since the inception of the program AAFM issued the majority most of its fiscal year (FY) 2016 and 2017 appropriations for the BMP program grants to farms located in the Lake Champlain Basin as directed by statute, which is the highest priority waterway. In June 2017, AAFM agricultural engineers started using a matrix to weight the priorities outlined in statute, such as basin location, when reviewing a proposed BMP project. However, the matrix does not include important factors in assessing priorities beyond what is required in statute. The State has identified three high priority areas within the Lake Champlain Basin, as well as critical source areas (CSA) within these higher priority areas. According to the State’s TMDL implementation plan, focusing on critical source areas will provide the greatest nutrient pollution reductions. The method that is used to prioritize higher priority subwatersheds of the Lake Champlain Basin is through the Strategic Watershed Planning processes, which is coordinated with USDA NRCS. One enhancement to this current methodology that would further satisfy the TMDL implementation plan is to specifically include Without including high priority and critical source areas in assessing priority matrix for BMP projects. The State lacks can then provide more assurance that grants are being directed to projects in these key areas, providing the greatest nutrient pollution reduction potential.”
- See our comment 11 below
- See our comment 12 below
- See our comment 11 below
- See our comment 13 on the next page

SAO Comment 11:

Based on discussions with personnel at the EPA and the Lake Champlain Basin Program, critical source areas (CSAs) can be identified at multiple scales such as at the subwatershed scale or as small as a specific area on a farm. The TMDL Implementation Plan did not identify which scale the CSA referred to, but the author of this section of the plan indicated that she intended this to represent the cropland area of farms. As a result, we removed the reference to CSA from the report.

Tactical basin plans identify prioritization of subwatersheds or catchments, which are smaller areas within the priority areas identified in the plan. We have modified the report to highlight this additional factor for prioritization and to recommend that the agency add this factor to its prioritization matrix as well.

SAO Comment 12:

The Secretary’s proposed edit is not germane to the report because we did not review the prioritization of projects selected for BMP program funding since inception of the program. Our audit assessed whether and how BMP programs grants were prioritized consistent with statute, policy, and rules for FY2016 and FY2017, and our findings related to prioritization of projects selected for funding are limited to this time period.

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SAO Comment 13:

The scope of our audit was limited to the BMP program. We did not review the State’s approach to meeting its obligation under the TMDL. We did note that the Vermont Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan identified three areas that are to be given increased education, outreach, and funding opportunities, targeted funding, and higher cost-share opportunities. These are the land areas that drain into the Missisquoi Bay, St. Albans Bay, and South Lake segments of the Lake Champlain Basin. We also noted that the tactical basin plans for these areas further identify smaller land areas where the greatest overall phosphorus reductions can be achieved, and we amended our report to include this information.

7. **Page 6 Objective 1b Finding**, the Agency suggests the following edits underlined to allow for the statements to more accurately reflect current practice. *“AAFM does not have a policy established for how to directly monitor farmers’ maintenance of farm improvements, known as conservation practices, funded by the BMP program. The Agency does visit farms through inspection or for additional conservation practice implementation, which is an effective method for observing the operation and maintenance of BMP practices. Last year the Agency performed 978 of these types of visits. However, the Agency does not have a method to document these monitoring efforts other than inspection reports and enforcement actions, which lack a separate mechanism to report back to the BMP program on the effectiveness of the operation and maintenance of implemented practices. Grant agreements signed by farmers require that the grantee maintain the improvements that make up the project for their designed lifespan. However, AAFM does not communicate the estimated useful lifespan of a conservation practice in the grant agreement, and the grant agreements do not always contain the correct title of a conservation practice or a complete list of the improvements. Lastly, AAFM does not provide the farmers with an operation and maintenance plan to inform farmers of the activities necessary to keep a conservation practice functioning as intended. However, it was noted that farms enrolled in the NRCS EQIP program who then receive a matching grant from BMP are provided operation and maintenance information for the practices installed, but this is not a practice performed on state-only grants. Therefore, it is unclear how farmers are not consistently provided ~~have~~ the information they need to comply with the grant requirements. If the conservation practices do not achieve their useful life, nutrient pollution reductions will not be as expected.”*

See our comment
4 on page 46

See our comment
6 on page 48

8. **Page 6, Objective 2 Finding.** The Agency would like to clarify that there are approximately 40 BMP grants and 100 conservation practices implemented in the program annually and the data is tracked and shared with DEC for all of them. This audit has identified one practice that has historically been challenging to Vermont and other states to quantify given the variability in management systems and therefore has been assessed by the Agency led Agricultural Expert Panel comprised of the leading scientists and researchers familiar with BMP tracking and phosphorus reductions. The Expert Panel has established a methodology they believe is the most effective at this point and the Agency is in the process of deploying that method. These statements refer to the second paragraph on page 6 with Agency recommended changes underlined, *"AAFM has ~~not~~ provided DEC with the data necessary to make most of those calculations, ~~specifically however, the lack of acreage data for BMP program projects that exclude livestock from waterways in the pasture~~ is limiting the ability to perform calculations for that practice given the new methodology being deployed by the Agency. Further, while the State plans to calculate phosphorus reductions in production areas for those farms that have been inspected by AAFM and found to be compliant with the Required Agricultural Practices (RAPs) and AAFM's farm permit, AAFM has not developed a methodology to make and record these compliance determinations. Without this information, DEC cannot calculate pollution reduction impacts for livestock exclusion projects constructed in pastureland or compliant production areas."*

SAO Comment 14:

The Secretary has mischaracterized our finding. We found that AAFM had not provided DEC with the data necessary to estimate phosphorus reduction impacts resulting from any of the BMP program grants in FY2016 and FY2017. AAFM did not provide DEC with the acreage data necessary to calculate phosphorus reduction impacts for fencing projects that exclude livestock from waterways in the pasture. AAFM does not have efficiencies for conservation practices constructed in the production area. Instead, AAFM has decided to calculate phosphorus reduction once a production area has been inspected by AAFM and determined to be compliant with RAPs and farm permits. However, AAFM had not developed a methodology for determining when a production area is compliant and did not yet have a way to determine acreage for production areas, which is a necessary element in the calculation.

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9. **Page 7, Second Paragraph.** The Agency has always considered whether a farm is in good standing before issuing a grant since the requirement came into effect in statute. The audit did not identify any farms that should not have been provided grants because they were not in good standing. The current process is informal, a conversation with the enforcement officer and the administration docket. The audit has identified that the Agency can improve by demonstrating the good standing has been reviewed and it will be included in updates to the grant program ranking system and grant agreement. Here is the referenced with suggested additions: *“Statute requires a farm to be in good standing with the Secretary of AAFM. However, despite a statement from AAFM that they have consistently performed the review, AAFM did not document whether farms are in good standing with the agency prior to issuing a grant in the files we reviewed, and AAFM did not have it written in any of their procedures we reviewed to check for this requirement prior to issuance.”*
10. **Page 7, Third Paragraph.** The Agency would like to clarify that language regarding good standing with the Commissioner of Taxes is not Agency of Agriculture based language, but rather part of the boiler plate form Attachment C developed by the Department of Buildings and General Services from the Agency of Administration. This form is required for inclusion by all state agencies for grants and contracts. Suggested addition: *“In addition, Attachment C maintained by the Department of Buildings and General Services and required under Administrative Bulletin 5, Policy for Grant Issuance and Monitoring for inclusion in all grants and contracts, requires that BMP Program grants contain clauses that the grantee is signing under the pains and penalties of perjury that they are in good standing with the Commissioner of Taxes. The grants also state that final payment may be withheld if the Commissioner of Taxes determines that the grantee is not in good standing.⁸ However, the SAO identified an instance where a grantee was not in good standing, received a grant, and received full payment. The Department of Finance and Management agreed that grant payments may not be diverted for purposes of paying tax debts, which explains why the final grant payment was made to the grantee. It is not clear why this provision is in the grant agreement when it is not allowed per statute.”*

SAO Comment 15:

We added a footnote to page 28 of the report to clarify that this language is required standard language in the grant agreements.

11. **Page 7, Recommendation #1.** The Agency suggests the following edits for reasons explained in point # 6 above: *“Revise the BMP Applicant Prioritization Matrix to allow for additional weight be given to high priority areas within a basin. ~~and to critical source areas within those high priority areas.~~”*

SAO Comment 16:

We removed the reference to CSAs and added information in the report about areas within the priority areas that have the greatest potential for phosphorus reduction.

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12. Page 8, Last Recommendation. The Agency suggests the following edits, provided as underlined: *“Seek advice of the Department of Finance and Management and the Attorney General’s Office regarding whether the grant provision that allows the Vermont Department of Taxes to withhold the final grant payments to pay taxes owed should be removed from the Attachment C provided by the Department of Finance and Management for BMP program grant agreements.”*

See our comment
17 below

13. Page 13, Last Paragraph. The Agency would like to explain why an 80% reduction concept for the farmstead was chosen. The Agency is following the lead of how the EPA Scenario Tool was developed for assessing production area base loading. Here is the quote from the EPA Scenario Tool report Page 23 (<https://www.epa.gov/sites/production/files/2015-09/documents/lake-champlain-bmp-scenario-tool-report.pdf>): *“Barnyard Runoff Management-The reduction efficiency attributed to barnyard runoff management is specific to the way this practice is implemented in Vermont. In Vermont, either the barnyard or farmstead runoff is diverted to a manure storage facility or the barnyard is covered. Therefore, the scenario tool uses an 80 percent efficiency factor for this practice, per the recommendation of the Vermont Natural Resources Conservation Service (NRCS) office (Potter 2013).”* Further, the Agency would like to emphasize its belief that using inspections as opposed to BMP practice installation, as done by NRCS, is more effective in quantifying reduction estimates. Inspections occur more regularly and are specifically looking at BMP management.

See our comment
18 below

SAO Comment 17:

We moved the footnote that explained why the 80 percent efficiency is used for the production area from the body of the report to page 15 in the background section of the report for clarity.

SAO Comment 18:

AAFMs plan to estimate phosphorus reductions for purposes of the TMDL once an inspection finds that a farm production area has no water quality issues and a determination is made that it is compliant with RAPs. However, AAFM currently has no method to assess the impact of specific projects constructed in the production area of farms that haven’t been inspected under BMP program grants. Our recommendation is that they develop one.

14. Page 14, First Paragraph. The Agency suggests the following edits to reflect that the Agency has met the statutory requirement: *“AAFMs met the statutory requirement to issued ~~most of their~~ FY2016 and FY2017 BMP program grants consistent with the established priorities ~~outlined in statute~~. Statute ranks the Lake Champlain Basin as the highest priority area in the State for financial assistance to farms for on-farm improvements that reduce agricultural pollution. Forty-eight of the sixty-four BMP program grants issued by AAFM with start dates in FY2016 and FY2017 (seventy-five percent) went to farms located in the Lake Champlain Basin.”*

SAO Comment 19:

We clarified the sentence to say that AAFM issued most of their FY2016 and FY2017 BMP program grants consistent with the statutory provisions that rank the Lake Champlain Basin as the highest priority area in the State for financial assistance to farms for on-farm improvements that reduce agricultural pollution.

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15. **Page 14, Second Paragraph.** This paragraph describes how the Lake Champlain TMDL Implementation plan highlights three additional watersheds, Missisquoi Bay, St. Albans Bay and South Lake watersheds. It then challenges that these areas were not included in the matrix and therefore it could lead to diminished nutrient reductions. The Agency’s application process is geared towards gathering applications from these prioritized watersheds through a combined effort with USDA to set aside specific funding for these watersheds and to engaged in outreach agreements with partners to “knock on doors” to ensure farms submit applications to correct water quality concerns. The Agency matches these federal agreements for eligible practices as a priority in statute. Internally, the Agency has prioritized our on-farm efforts in Missisquoi and St. Albans Bay through the North Lake Farm Survey effort to explain the programs to farms and let them know their conservation practice needs and how to sign up. The Agency visited every livestock farm in these areas through this effort and then prioritized these farms for assistance by hiring contractors to provide guidance through the North Lake Contractor program. Further, critical source areas designate a system of ranking land based management practice needs, which are not the type of practices that are typically capital eligible, hence it is not a tool that is specific to use in the BMP program. Here are some suggested edits to clarify these statements. *“However, the Lake Champlain TMDL Phase 1 Implementation Plan gives highest priority to three areas within the Lake Champlain basin, and the State further identifies critical source areas within the three high priority areas because these areas can provide the greatest amount of nutrient pollution reduction. In June 2017, AAFM created a matrix to assess the priority of applications received for the BMP program, but this matrix does not give additional weight to a farm located in one of these high priority areas over another similar project located elsewhere in the Lake Champlain Basin. AAFM has demonstrated they are providing a programmatic effort to promote BMP implementation in these areas, however AAFM should revise the BMP prioritization matrix to include these priorities more specifically. Therefore, AAFM may be directing resources to BMP projects that do not result in the greatest nutrient pollution reduction.”*

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SAO Comment 20:

The programmatic efforts to promote implementation of best management practices and to meet the goals of the Lake Champlain Phosphorus TMDL Phase 1 Implementation Plan that the Secretary describes are outside the scope of the audit we conducted. We assessed AAFM’s processes for selecting projects for BMP program funding to determine whether these processes led to the selection of projects consistent with priorities outlined in statute, rules, and policy. We did not assess and did not report on the work AAFM, federal agencies, and other partners have performed to urge and incent farms to implement best management practices.

SAO Comment 21:

Although we removed the term CSA because the author of that section of the TMDL plan indicated that she intended this to represent the cropland area of farms, the tactical basin plans identify catchments that have the greatest phosphorus reduction potential. We have added this information to the report on page 19. Since the tactical basin plans identify areas with the greatest phosphorus reduction potential and the applicant prioritization matrix does not include these areas as a factor to be assessed, our finding that AAFM may direct resources to BMP projects that do not result in the greatest nutrient pollution reduction remains unchanged.

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16. **Pages 15-17 “Project Prioritization Tool Addressed Statutory Priorities but Not Priorities Established in Clean Water Plans”** This section establishes that the Agency implemented BMP projects according to statute, however it did not given credit to how the Agency built a system to ensure grant agreements that were submitted, and the cost-share provided for grants were both geared towards critical watersheds identified in Clean Water Plans. The Agency worked in partnership with the US Department of Agriculture, Department of Environmental Conservation, Conservation Districts, University of Vermont Extension, US Fish & Wildlife, Friends of Northern Lake Champlain and other partners to make sure priority farms in Missisquoi Bay, St. Albans Bay and South Lake were and continue to be provided additional outreach and assistance to identify water quality concerns and to submit applications to both USDA and VAAFMM for BMP projects. Further, the VAAFMM BMP Policy at the time of this audit was focused on ensuring that priority watersheds were given a higher cost-share rate to ensure the outreach on the program was geared towards enticing these specific farms to sign up and to ensure the projects were implemented by reducing the financial risk to the farm for implementing a water quality practice. The advertisement for the higher cost-share policy and the identification of resource concerns on farms that were eligible for the BMP program were identified directly by Agency staff through the North Lake Farm Survey. Following the Survey, the Agency further supported implementation in these areas through the support of North Lake Contractors who were specifically contracted to help farms implement BMPs.

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Specifically the Agency feels the above method for increasing education and outreach and the fact that this did increase the number of applications both at USDA and VAAFMM for these prioritized watersheds more than met the goals from the TMDL Implementation Plan.

17. **Page 17, Paragraph 3.** The Agency has explained to the State Auditor’s Office (SAO) that their interpretation of Critical Source Area was not aligned with how the term was used in the TMDL Implementation plan. Specifically, CSA is a term that is used to explain a priority system for agricultural lands, not for farmsteads. Therefore, this statement is out of context and irrelevant to the BMP program and should be deleted.

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“The State further identifies critical source areas (CSA) within these three areas that are designated as providing the greatest potential for nutrient pollution reductions. The TMDL Phase I Implementation Plan states that research has demonstrated that approximately 80 percent of the nutrient pollution reduction goals can be achieved by focusing on 20 percent of the area (i.e., the CSA). Because AAFM’s Applicant Prioritization Matrix does not provide additional weight to farms in the Lake Champlain Basin that are located in critical source areas, AAFM may be directing limited resources to BMP projects that do not offer the greatest nutrient pollution reduction.”

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18. Page 17. Objective 1b, First Paragraph. The Agency visits farms as part of our daily job both through regulatory and technical assistance support with a focus on reviewing whether BMPs are necessary and where they are already implemented, assessing whether they are being maintained appropriately to protect water quality. The Agency often examines previously implemented BMPs through these visits and last year conducted 978 visits for this purpose. Certainly, the Agency agrees it can improve these efforts by creating a system that includes better documentation that allows for sorting and reporting of these visits to include BMP monitoring notes. However, staff are looking at implemented BMPs and certainly if a practice is not being maintained such that a water quality risk is prevalent, there is documentation through inspection reports and if the case was referred to enforcement, there is further documentation generated as that process progresses. Though incredibly rare, when BMPs are being misused, these issues are also brought back from the field and reported to the Agency to be addressed by enforcement. With approximately 1,000 farms utilizing the BMP program, the accountability on the BMPs is much higher than a standard spot check type of monitoring program. If the Agency were to revise the statement in the audit, it would suggest:

"AAFM visits does not directly monitor farmers' maintenance of conservation practices constructed in projects funded by the BMP program through inspection and technical assistance farm visits. If farmers do not maintain conservation practices, the State documents that in an inspection report and through enforcement if there is a violation due to the lack of maintenance. AAFM agrees that creating a tracking mechanism that allows for reporting specifically on the maintenance of conservation practices implemented by the BMP program would be beneficial for the public to understand the accountability of the program. -is at risk that it will not achieve the expected results (i.e., estimated nutrient pollution reductions) on its investments through the BMP program."

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19. Page 17 Objective 1b, Second Paragraph, Part One. Over the past 22 years, the majority of BMP projects were implemented in conjunction with the USDA grants. USDA has always been the lead on providing the contract to the farmer that itemized the life span of the practices and the handouts that explain the operation and maintenance of the practices. Additionally, all operation and maintenance information along with practice lifespans are available on the NRCS Conservation Practice (<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/vt/technical/?cid=stelprdb1080585>) and FOTG website (<https://cps.sc.egov.usda.gov/publicView>), which are well known websites to farmers and partners. In the last few years, the number of State only agreements has been increasing as USDA requirements to fix a whole farm has not been financially feasible all at once to many farms. The Agency agrees, it can and will start including this information into grants, however, it is not a fair assessment to declare that farms across the program were not provided this information as NRCS provides it for contracts matched with a BMP grant.

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20. Page 17-18, Objective 1b, Second Paragraph, Part Two. There is a statement about how the Agency lists practices in grant agreements. The Agency feels it is important again to reiterate that the NRCS provides very detailed contracts and supporting documentation to the farmer. The Agency generally is referencing the federal agreement and aims to keep things simple and understandable. The degree of itemization that occurs in federal agreements is simply to allow for additional detail in creating cost estimates for contracts to be built into an NRCS agreement. Some planners at NRCS are “lumpers” and others are “splitters” depending on how they build the contract. Therefore, two federal agreements for the same practices could be different when provided to the Agency. The difference can also include the standardized name on the NRCS contract, as planners at NRCS also choose those names when drafting the contracts. To maintain consistency on the Agency’s part, grants are written that are specific to the overarching practices being installed, rather than all the details which can vary. When invoices are reviewed, staff ensures all component practices are necessary and appropriate for the overarching practice. With all of this it appears that SAO may not have fully understood the process of how federal and state agreements work in combination and that this statement is misleading to the audience: *“Therefore, it is unclear how AAFM can reasonably expect a farmer to understand their obligation for the maintenance of conservation practices and hold them accountable.”*

SAO Comment 22:

Our finding is not misleading. Per the grant agreements, farmers are responsible for maintaining conservation practices for the duration of the practices’ useful life. However, we found that farmers are not provided with information necessary to meet this obligation. Specifically, 77 percent (23 of 30) of the grants we reviewed were to farms that did not receive NRCS funding for those projects, and there was no evidence in the grant file that an operation and maintenance plan had been provided to the farmer. Further, these grant agreements did not specify the useful life for the conservation practices installed, did not consistently list the conservation practices funded by the grant, and did not always use the NRCS term for conservation practices. Lacking this information, it’s not clear how AAFM can expect farmers to understand their maintenance obligations and hold them accountable.

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21. Page 18, Last Paragraph. This paragraph is an assumption that is completely misleading to the reader. The inspection process by the Agency is a very thorough process that includes checking every single production area aspect and mapping specific details within production areas, which covers all areas where BMPs are implemented. The recurrence interval of the inspection requirements, and the additional inspections that occur beyond the statutory requirements, is a very comprehensive check on implemented BMPs. Albeit, there is not an easy way to search out the operation and maintenance aspects associated with these practices but they are documented in the inspection reports. Additionally, our Agency and staffing level is not beyond the ability of people to speak to each other. The process where BMPs have not been maintained as intended is to bring those items to the enforcement committee that meets weekly and discuss whether the farm is sent a letter explaining they are out of compliance with the BMP grant agreement. The projects that were reviewed by the audit did not have non-compliance grant issues, however it is something that Agency has addressed when it is identified.

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22. **Page 19.** The Agency would like to make sure its comments listed as #19 and #20 are reviewed as there is continued discussion on page 19 about operation and maintenance plans and the practice nomenclature.

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23. **Pages 20 -21.** The audit explains how the Agency visits farms for inspection, yet the report does not explain the depth to which the inspection covers the farm production area and any implemented BMPs. Last year the Agency water quality staff performed 978 inspections and visits to farms to follow up on just these types of practices. The Agency writes reports for these visits and when non-compliance, or lack of maintenance, is apparent, the case is referred to a supervisor and if warranted to enforcement for review. Yes, the Agency does not have a specific BMP data monitoring program and that is because these farms are visited on a very regular basis and have real time monitoring of these practices, which is better than any spot check audit would outline. The public can look at compliance rates on farms to identify the success of how well BMPs are operated and maintained on farms as an indication of the success of the BMP projects. Therefore, the Agency feels a statement like this is misleading to the public, *“However, AAFM has not developed a methodology to determine which farms are compliant. Therefore, AAFM is unable to provide meaningful outcome information for the BMP program projects.”*

SAO Comment 23:

Our statement is not misleading. According to an e-mail from the agriculture water quality section chief, “At this time, the enforcement committee does not make a specific determination as to whether a production area of a farm is compliant with the water quality provisions of the RAPs. AAFM is working on a methodology to make these determinations in the future and to record those determinations so that information for the production areas can be used to measure water quality impacts.”

Because the term “outcome” can be used in different ways when assessing performance, we have clarified our meaning by changing “provide meaningful outcome information” to “estimate the phosphorus reduction impact.”

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24. **Page 21.** The report asserts that the Agency cannot calculate reductions from pasture improvement projects, but fails to explain that the Agency is in the process with the expert panel to refine the previous process that was used, which was based on tracking animal numbers. The Agency previously used Croft's Coefficients, a NRCS built estimation tool, which required providing animal unit information to calculate an efficiency. The Agency decided to move to a more spatially based methodology and worked with the Agricultural Expert Panel to define what a new approach would include, which was determined to need acreage. Therefore, the Agency is creating this new process of tracking the information by acreage and will continue to move in that direction. For the report to suggest that the Agency cannot quantify any details about pasture projects since the programs inception is without fact and misleading to the public.

SAO Comment 24:

The Secretary has mischaracterized our finding. This audit focused on FY2016 and FY2017, so our findings do not address all activity since inception of the program. We found that AAFM did not provide DEC with data needed to estimate phosphorus reductions for conservation practices funded by the BMP program in these years. With regard to pasture projects, we found that DEC has not been able to calculate water quality impacts for fencing projects that exclude livestock from waterways because AAFM has not provided DEC with the acreage data necessary to perform those calculations during the two years in our scope.

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25. **Page 22, Third Paragraph.** The report asserts that the Agency's inspection and enforcement process does not provide a formal conclusion about whether the farm is in compliance with the RAPs and permits. The whole point of the enforcement committee making a decision whether an enforcement action is necessary is based on a conclusion that the farm is not in compliance with the RAPs and or it's permit. Therefore, this statement is once again misleading to the public. The Agency can review the enforcement records for an individual farm and provide the information needed to calculate efficiencies for the production area. What the Agency cannot do at this point in time is provide this for all farms across the State. The Agency has visited all of the medium farm operations (MFOs) and large farm operations (LFOs), however the Agency has 7 years to visit the Certified Small Farm Operations (CSFOs) per statute and therefore will not have a complete data set for a few years and would need to make assumptions in the interim to estimate compliance. The CSFO farms are newly required to be inspected per Act 64 starting in July 2017.

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26. **Page 22, Fourth Paragraph.** For production area phosphorus estimation from BMPs, the audit states that the Agency is unable to perform estimations for any of these practices. This leaves out a full explanation of where the Agency is refining a new system of estimation to align with the TMDL and is not reporting using the older system in the interim. The prior system, which used Croft's Coefficient's, has multiple production area practices where estimates can be calculated. Following the TMDL development, which utilized a different estimation methodology than the Agency was previously tracking phosphorus, the Agency elected to revise its methodology to align more closely with the TMDL. Therefore, as this new methodology is implemented, the Agency has identified new data tracking needs and is actively working to integrate these into our program tracking system. The audit reads as if the Agency has never been able to report out on phosphorus reductions from the BMP program, which is just not true.

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27. **Page 23, Second Paragraph.** The Agency acknowledges that inspection and technical visit efforts are not specific to the BMP program and do not track back specifically to the program, though the inspection process ensures that all implemented BMPs on a farm are inspected, whether funded by the BMP program or not. The Agency will work on a process to tie the inspection back to the specific BMP projects, which is currently being developed by the engineering and inspection staff.
28. **Page 23, Third Paragraph.** The Agricultural Expert Panel is discussed and this report explains that the State outlined the challenges Vermont is facing with tracking BMP efficiencies to the Panel. The Agency feels it is important to explain that other States and programs are having the same challenges, hence why the Expert Panel was brought together to review what other states are doing to try to overcome some of these challenges, and where there is no solution available from another state, to use the best available information from research.
29. **Page 24, Other Matters, First Paragraph.** The Agency acknowledges that the BMP rules need revision, however the Agency, as stated in the audit report, has kept up the BMP policies to ensure the most current statute, legislative acts and water quality reports such as the TMDL were included and performed in the course of operating the BMP program. Therefore, even without a revised rule, the implementation of the program has not been compromised.
30. **Page 25 Good Standing with AAFM.** This is a new requirement that came out of Act 64 in 2015. The Agency has drafted a policy to specify what “good standing” means and follows that policy. The Agency is small enough that a check on “good standing” can be done verbally. At any point in time there are a handful of farms not in “good standing” at the Agency, and they are farms well known by each division to be challenged with compliance issues. Therefore, the complexity of the “good standing” policy has not necessitated more than internal conversation about which farms are not in good standing and periodic updates about these farms at weekly meetings. The Agency has not provided any grants to any farms not in good standing from any division since Act 64 of 2015. The Agency will make sure this is included in our granting plan and grant risk assessment form for the future, but it is part of the program’s practice currently.
31. **Pages 25-26 Good Standing with the Tax Department.** It is important to clarify right up front in this report that the BMP Grant Agreements include Attachment C, which is a required addendum in all grant agreements by all Agencies and Departments in State Government. These findings about good standing with the Tax Department are not an issue specifically with the BMP grant program, but rather with the statewide Agency of Administration’s Bulletin 5 Policy for Grant Issuance and Monitoring. The way this section is introduced it leads the reader to the assumption that the Agency, and specifically the BMP grant program established the conflicting policies. Instead, our Agency identified the conflict between statute and the bulletin and the SAO has agreed they would write a letter of their findings to the Legislature and Administration so that these conflicts can be corrected.
32. **Page 26 AAFM Does Not Check for Workers’ Compensation Insurance Prior to Issuing Grants.** The Agency has interpreted Attachment C requires grantees to provide Certificates of Insurance (COIs) for general liability, and that the grantees agree to maintain workers compensation by agreeing to the grant agreement. In review with the SAO, the Agency agrees we have interpreted this incorrectly and will follow up with the Administration to determine when and where this is specifically required, and to collect workers compensation insurance where applicable.

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33. **Page 27 Conclusions, First Paragraph.** As stated above, this report did not include an explanation of how the Agency prioritizes the whole system of technical assistance support to ensure that BMP applications are geared towards critical watershed in the Lake Champlain Basin. The SAO only reported on the matrix and determined that the prioritization was not occurring. However, with increased cost-share funding being advertised, dedicated staff sent out specifically to these watersheds to work with farmers to develop BMP applications and select funding pools set aside for federal funding of which BMP funds are match, these areas were in fact prioritized. The following edits are recommended for the last two sentences in this paragraph. *“However, AAFM’s matrix does not give greater weight to applications in these areas within the Lake Champlain Basin. The Agency does have a BMP policy that provides for greater cost-share rates in critical watersheds which is advertised by the Agency and partnership to encourage applicants in these areas, as well as working together to ensure dedicated staff are sent out specifically to these watersheds to work with farmers to develop BMP applications and to establish specific funding pools set aside for federal funding in these strategic watersheds of which BMP funds are match. Therefore, AAFM may be directing limited State resources to BMP projects that do not offer the greatest nutrient pollution reduction.”*

SAO Comment 25:

The Secretary’s edits in this section are not germane to the point we make in this section, which is that the applicant prioritization matrix does not weight priority areas within the basin nor the areas of greatest phosphorus reduction potential identified within the priority areas.

34. **Page 27 Conclusions, Second Paragraph.** The Agency has explained above that we visited 978 farms last year to specifically follow up on BMP practices. Therefore, the following statement is recommended to be edited as follows; *“Additionally, while AAFM does not directly have a reporting mechanism for the operation and maintenance of BMP projects implemented that is tracked in the BMP program files. The Agency does monitor farmers’ maintenance of the conservation practices constructed under the BMP program grant agreements through inspections and all of the information about operation and maintenance is captured within inspection reports for the specific farms. –and–The BMP grant agreements often do not contain the needed information on their useful lifespans. Farmers are provided this information when they also receive a USDA NRCS EQIP contract. For state only BMP grant agreements, farmers are expected to access this information publicly on the NRCS website for conservation practices. The lack of information directly in the grant agreement for state only BMP grant agreements makes it difficult for farmers to adhere to the terms of the agreement, and the lack of the ability of the Agency to easily report in aggregate on the monitoring makes it difficult for the public to understand by AAFM increases the risk that the expected pollution reduction from conservation practices funded by the State will not be achieved.”*

SAO Comment 26:

The Secretary’s edits to the conclusion are unwarranted since our conclusions are based on the evidence presented in the findings section of the report.

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35. **Page 27 Conclusions, Third Paragraph.** The Agency is engaged in establishing new methodologies for reporting BMP accountability for nutrient reductions. The SAO report gives the sense that the Agency is unable to calculate any reductions, which is not the case. The Agency is working to change how it reports to better align with the framework for how the TMDL was built. A suggested edit is as follow: *“Lastly, AAFM is in the process of creating new methodologies for calculating clean water impacts that align with how the TMDL calculates reduction estimates. AAFM will begin tracking data in a different manner to meet this goal and therefore, has not supplied DEC with the data DEC needs to calculate the clean water impacts of the BMP program. AAFM is taking steps to change how data is tracked to remedy this, but in the meantime ~~until then~~, AAFM has and will continue to capture data about the practices implemented. ~~is unable to provide meaningful outcome information for the BMP program.~~”*

SAO Comment 27:

We disagree with AAFM’s proposed edits. The Secretary indicates that the agency is capturing data about the practices being implemented, but we found that AAFM has not provided DEC with the acreage data for production areas or pastureland projects that are needed to estimate phosphorus reduction impacts of the BMP program projects because AAFM has not decided how it will obtain acreage data for production areas and has not tracked acreage data for pastureland projects.

36. **Comments on the Recommendations:**

1. In discussions with the SAO, the Agency has agreed to add the priority watersheds to the BMP matrix. However, the Agency has clarified that “critical source area” is a term that is intended to apply to agricultural land, not production areas and therefore will not be included in the matrix.

SAO Comment 28:

Consistent with comments 11, 16, and 21 we removed the reference to CSAs and added information in the report about areas within the priority areas that have the greatest potential for phosphorus reduction. We revised recommendation #1 accordingly.

2. The Agency is already working on building a tool to track individual BMP compliance within the farmstead and will be able to use that to determine future reduction estimates.

SAO Comment 29:

The agency’s response does not address our recommendation.

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3. The Agency has explained that NRCS staff may report the list of conservation practices differently for similar projects, however the Agency can perform this task if it makes the record tracking more consistent between a state and federal agreement. The Agency can also include reference to the practice lifespans along with the grant agreements.

SAO Comment 30:

The Secretary has not sufficiently addressed our recommendation. It appears that he is only addressing those projects that also receive federal funding.

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4. The Agency has explained that NRCS staff may report the list of conservation practices differently for similar projects which is why we provided a naming convention that describes the overall project. However, the Agency can perform this task if it makes the record tracking more consistent between a state and federal agreement.
5. The Agency can provide operation and maintenance plans by providing a link in the standard grant language to where operation and maintenance plans can be found online.
6. The Agency has already stated it is moving away from tracking animal units to acreage.

SAO Comment 31:

The Secretary's response to recommendation #6 is not sufficient. We found that the agency is not tracking acreage data for livestock exclusion projects in the pasture, even though there is a data field for this information in the file AAFM provides to DEC for calculating phosphorus impacts. Our recommendation is that AAFM start tracking this data and report it to DEC.

7. The Agency is building a tool to address this. However, it is important to note that the finding that the enforcement committee does not issue a formal conclusion on whether a farm is in compliance with the RAPs and it's permit requirements is inaccurate as that is all the enforcement committee does and then further documents it in an enforcement action.

SAO Comment 32:

Subsequent to providing their response on the draft report, the agency explained that they are currently developing a database to track inspection-based data regarding compliance with water quality regulations and their intent to report this compliance data to DEC as needed. However, this does not address our recommendation to develop a methodology to determine and document whether a farm is compliant with RAPs and permits.

The agriculture water quality section chief explained that the AAFM enforcement committee reviews the inspection documents and makes a determination as to whether a farm should receive an enforcement action, but at this time, the committee does not make a specific determination as to whether a production area of a farm is compliant with the water quality provisions of the RAPs. AAFM is working on a methodology to make these determinations in the future and to record those determinations so that information for the production areas can be used to measure water quality impacts.

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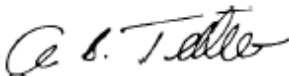
8. The Agency will continue to work with the Agricultural Expert Panel and in the meantime is continuing to map production area information as inspections are performed to ensure the data is available once a final determination is made and reviewed by EPA.
9. This is being addressed by the tool currently being built
10. The Agency intends on using the 80% methodology utilized by NRCS, but will track more detailed data and will work with the Agricultural Expert Panel to identify methodologies that are more refined.
11. The Agency will revise the BMP rules by December 31, 2019.
12. The Agency will follow up with the Department of Finance and Management as it is believed that the next iteration of Bulletin 5 is going to include good standing for water quality as this is a statewide requirement. If the revised Bulletin 5 does not include, the Agency will integrate into our own granting plans.
13. Again, the reason the Tax Department clause is in the BMP program grant agreements is because it is a requirement of Attachment C, which is universally required by all state agencies and departments. However, it is the Agency's understanding that the SAO will also follow up on this matter with the Department of Finance and Management and the General Assembly.

SAO Comment 33:

The SAO intends to provide a letter to the legislature explaining that statute does not authorize the Vermont Department of Taxes to divert grant payments to grantees for taxes owed even though VDT is authorized to divert other state payments, such as tax refunds, government contract payments, and lottery winnings. However, we believe that AAFM should confer with the Department of Finance and Management and the Attorney General's Office about the provision of Attachment C that conflicts with current state law.

14. The Agency will work with the Administration to identify where and when this is necessary and will perform the duty as required.

Sincerely,



Anson Tebbetts
Secretary
Vermont Agency of Agriculture, Food and Markets

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