

AAFM RESPONSES
TO QUESTIONS
FROM THE SENATE COMMITTEES



VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS

Joint Senate Hearing
Clean Water Projects: Planning and Implementation
Friday, January 19, 2018 from 9 AM to 11:30 AM in Room 10 at the State House.

Senate Committee on Agriculture
Senate Committee on Natural Resources

Invitation

“The Committees request reports at that time from the Agencies of Agriculture, Transportation, and Natural Resources concerning water quality in Vermont. Included in information in the reports for the Committees should be:

- a brief summary of accomplishments of the past year and,
- in greater detail, long-term plans for the next 5 years.

The Committees are most interested in specific action plans, the process used to develop and update the plans, and projections of funds needed to accomplish water quality goals.”

Five Questions

1. “What is your agency’s five-year plan for clean water? (If not a five-year plan, please substitute whatever interval you employ.)
2. “How do you build your plan and replenish it to ensure you have ample planned, budgeted, and scheduled projects in your five-year plan?
3. “What is the basis for developing your plan? Do you begin, for example, with the state’s Tactical Basin Plans (e.g. watershed by watershed)?
4. “What is the budget associated with that five-year plan? And within that budget, please specify capital versus non-capital dollars.
5. “What agency has overarching clean water planning and implementation responsibility— that is, the responsibility to ensure that regardless of operating area (e.g. AAFM, ANR, AAFM, BGS, ACCD, etc.), the state’s clean water laws are being following and appropriate planning and programs are in place?

AAFM Report on the Planning and Implementation of Clean Water Projects

A) A brief summary of accomplishments of the past year

Introduction

More than 1.2 million acres of Vermont land is devoted to farming, and agriculture is one of our most important industries. As a whole, agriculture preserves open land, provides healthy local foods, and is an essential part of Vermont's identity.

At the same time, Vermont's waters are critical to the state's economy and to residents' quality of life. The Water Quality Program within the Agency of Agriculture, Food and Markets (VAAFMM) utilizes education, research, regulations, monitoring, and compliance and enforcement while providing technical and financial assistance to farmers that simultaneously promote the long-term viability of farms and the health of our state waterways.

State Fiscal Year 2017 saw the continued expansion of the Water Quality Program's capacity and impact as funding resources allocated to the Agency of Ag from Act 64 of 2015 allowed newly onboarded staff to expand their effectiveness in priority program areas. Major milestones continue to be achieved each year by the program as the State of Vermont and agriculture as a sector work to meet reductions required by the 2016 EPA TMDL for Phosphorus for the Lake Champlain Basin in Vermont.

Brief Summary

In SFY2017, the Water Quality Program revised the RAPs to improve water quality in the state and implement the small farm certification program. The Water Quality Program also performed all of the required inspections and enhanced the MFO and LFO inspection protocols to be equivalent, which includes 3 field checks for the main facilities and an additional field check for each additional facility the farm has under its permit. The Memorandum of Understanding between ANR/DEC/AAFMM for the agricultural nonpoint source program was also revised and DEC and AAFMM continued to coordinate inspection and enforcement actions per the 2007 MOU – revised 2017 – and has continued quarterly compliance meetings to increase coordination

Education, engagement and outreach remains a critical tool to ensure agricultural environmental regulations are understood and followed by farmers. In SFY2017, the Water Quality Program held 93 water quality education and outreach events provided 25% more hours of individual instruction to farmers – totaling over 5,000 of instruction in SFY2017.

Providing technical and financial assistance to farmers to support them to achieve compliance with water quality standards and improve water quality on their farms was marked by an expansion in both the engineering staffing levels to design and facilitate implementation of these practices, project applications from farmers wanting to participate in the program and total dollars obligated. In SFY2017 over \$1.3 million was awarded through 30 Best Management Practices (BMP) grants which installed 79 total practices including waste storage facilities, barnyards, and silage runoff collection systems.

Inspection and Enforcement are important tools within the water quality program to ensure compliance with state water quality rules. In SFY2017, program staff - Water Quality Specialists – responded to 122 complaints and conducted 106 compliance checks. Of these 228 alleged violations, 93 of them resulted in enforcement actions total 180 counts of which 12 of these enforcement actions are pending.

The water quality program promulgates new rules as deemed necessary by the Agency or required by law and revise and renew existing rules and permits based on new information, scientific research, and experience to date. The goal of this area of effort is to create meaningful and enforceable regulations with result in increasing compliance rates over time. The Required Agricultural Practices (RAPs) were amended by Rule, effective December 5, 2016. Further, the Water Quality Program submitted the Final Tile Drainage Report in conjunction with the Agency of Natural Resources as required by the Legislature in Act 64 of 2015. The Agency began revisions of the Medium Farm Operations (MFO) General Permit – a standard process which occurs every five years per the MFO Rule.

Ensuring accountability and accurate reporting of efforts undertaken by the water quality program as well as farmers is a major area of effort within the program. Accurate and thorough accountability will ensure public trust that Clean Water Funds are being allocated to the most effective programmatic and grant areas to improve water quality. To do this, the water quality program creates, measures, and reports on key metrics of success for the Program's work. In SFY2017 Results Based Accountability metrics were established for CWF Grant programs, further reporting templates were developed and shared with external partners grant programs to ensure consistency between grantee reporting.

Act 64 of 2015 allocated additional staffing resources to ensure agriculture in Vermont meets water quality standards laid out in the Act. Program leadership worked to increase both the capacity of existing staff and the appropriate number of staff needed to be successful in new and added legislated responsibilities. While some gaps remain, the goal of the program is to Increase staff to levels needed to fully support technical and engineering services, outreach and engagement, permitting & inspection programs, and enforcement. In service of this goal the Program hired five new water quality staff plus onboarded a new AmeriCorps member in 2017.

Technology remains a crucial tool to ensure the full extent of the agricultural landscape is understood by the Program and appropriate resources can be deployed to support farmers to achieve compliance with regulatory standards outlined by the Agency. To do this, the Program advances and deploys technologies to improve efficiency, consistency, and availability of data for staff, farmers, and partners. In support of this, the Water Quality Program developed a 'Partners Database' to provide for consistency in multi-partner and Agency conservation planning, implementation and tracking. The Program was presented with a national award from ESRI for the Special Achievement in GIS (SAG) Award for the development of the 'Partner Database'.

The Water Quality Program receives funding from the Clean Water Fund to provide additional state funds to help farmers implement actions that will reduce pollution washing into Vermont's rivers, streams, lakes, ponds and wetlands. One way the Water Quality Program delivers these funds is through the Agricultural Clean Water Initiative Program (Ag-CWIP) which supports partner organizations to deliver Innovative Phosphorus Reduction Strategies, technical assistance direct to farmers, as well as expand their organizational development. \$1,718,000 in state funding was obligated through Ag-CWIP grants in SFY2017. Some focus areas of partner grants include evaluating farm viability and finding alternative farm strategies when water quality costs needed for a current operator to meet water quality standards are excessive, a manure transfer and assessment program to better distribute manure across the landscape, also on farm Technical Assistance is being provided by farmers ahead of the Agency inspection process.

Tasks Completed

<u>Rules, Regulations, Permits, and Programs</u>	Revise AAPs to RAPs to improve water quality in the state and implement the small farm certification program.
<u>Engagement and Outreach</u>	Provide Agriview to all farmers and fill with seasonally appropriate educational content
<u>Engagement and Outreach</u>	Launch the VESP program and enroll farms
<u>Engagement and Outreach</u>	Revise and maintain the website and other publication materials
<u>Engagement and Outreach</u>	93 educational events focused on new RAPs
<u>Engagement and Outreach</u>	Lake Carmi significant coordination and data compilation
<u>Technical & Financial Assistance</u>	\$1.9M in BMP, FAP and Grants to Partners
<u>Technical & Financial Assistance</u>	Assess maple operations and begin BMP development process
<u>Technical & Financial Assistance</u>	Support the continued development of the North Lake Contractors effort
<u>Technical & Financial Assistance</u>	Train A&E firms and utilize these on 22 farms

<u>Technical & Financial Assistance</u>	Engage with partners in alternatives to traditional WQ investments when costs are more than the farm is worth
<u>Technical & Financial Assistance</u>	Create a BMP priority ranking tool and implement it
<u>Technical & Financial Assistance</u>	Launch the Conservation Equipment Assistance Program (CEAP) program once again - \$4.5M in requests for \$1M of available funding
<u>Technical & Financial Assistance</u>	Perform field checks on all FAP applications
<u>Inspection</u>	Significant ramp up the NMP review process for LFOs
<u>Inspection</u>	Revise nearly every LFO permit including public informational meetings
<u>Inspection</u>	Performed 392 inspection visits
<u>Inspection</u>	282 water samples taken
<u>Inspection</u>	Revise the entire inspection process
<u>Inspection</u>	Perform ALE plan reviews on all conserved farms prior to closing
<u>Inspection</u>	DEC and AAFM will continue to conduct on-farm multi-agency inspections to ensure consistency in the inspection process. Agencies conducted a minimum of 10 joint inspections
<u>Inspection</u>	Draft guidance documents for nuisance to be incorporated in LFO permitting
<u>Inspection</u>	Educate and implement the Revised Secretary's Decision
<u>Enforcement</u>	Revised MOU for enforcement with ANR
<u>Enforcement</u>	Created MOU with AGO for enforcement
<u>Enforcement</u>	145% increase in enforcement actions
<u>Enforcement</u>	Coordinate with AGO on 4 major cases
<u>Enforcement</u>	Refer dozens of cases to ANR
<u>Enforcement</u>	Review regulations with VT State Police and when they need to notify us or ANR
<u>Enforcement</u>	Develop and implement a regional enforcement training in VT
<u>Quality of Work and Outcomes; Metrics, and Evaluation</u>	Was audited by the State Auditor for the BMP program
<u>Quality of Work and Outcomes; Metrics, and Evaluation</u>	Further integrate results based accountability into the entire WQ program
<u>Quality of Work and Outcomes; Metrics, and Evaluation</u>	Develop a strategic plan for the WQ Division
<u>Rules, Regulations, Permits, and Programs</u>	RAPs Massive overhaul and some of the most stringent non-point source agricultural regulations in the nation.
<u>Rules, Regulations, Permits, and Programs</u>	As part of revisions to Required Agricultural Practices (RAP; formerly "Accepted agricultural practices or AAP), adopt by rule requirements for training classes or programs for farmers Establish a training program and schedule for all farmers to complete training
<u>Rules, Regulations, Permits, and Programs</u>	Develop TMDL implementation tracking system at ANR/DEC with AAFM to ensure ability to estimate phosphorus load reductions achieved by TMDL implementation activities
<u>Rules, Regulations, Permits, and Programs</u>	Certified over 250 farms as CSFO's (deadline 1/31) Adopt and implement small farm certification program as part of RAP revision

<u>Rules, Regulations, Permits, and Programs</u>	Certified 78 Custom Manure Applicators As part of RAP revisions, adopt by rule and implement custom applicator certification program for operating in VT (Act 64, Sec. 16)
<u>Rules, Regulations, Permits, and Programs</u>	Revised MFO GP
<u>Rules, Regulations, Permits, and Programs</u>	Draft Tile RAP regulatory changes
<u>Rules, Regulations, Permits, and Programs</u>	Created the RAP Development Committee
<u>Rules, Regulations, Permits, and Programs</u>	Responded to significant public records requests
<u>Rules, Regulations, Permits, and Programs</u>	Address variance process for frequently flooded soils
<u>Rules, Regulations, Permits, and Programs</u>	Draft an alternative NMP standard for vegetable operations
<u>Rules, Regulations, Permits, and Programs</u>	Revise BMP policy
<u>Rules, Regulations, Permits, and Programs</u>	Establish livestock exclusion standards to prevent erosion and water quality impacts and develop a program to support grazing and livestock exclusion (Act 64, Sec. 4)
<u>Rules, Regulations, Permits, and Programs</u>	Develop contracts for grassed waterways, livestock stream exclusion and tile drainage sampling
<u>Rules, Regulations, Permits, and Programs</u>	Draft a report on NMP confidentiality and mapping tile drainage
<u>Rules, Regulations, Permits, and Programs</u>	Work on pathways for nutrient trading
<u>Rules, Regulations, Permits, and Programs</u>	Develop a buffer tool to address uncertainty on “striches”
<u>Rules, Regulations, Permits, and Programs</u>	Submit the Tile Drain Final Report to the Legislature
<u>Rules, Regulations, Permits, and Programs</u>	Development with DEC of stormwater management efforts on farms through LFO permitting
<u>Rules, Regulations, Permits, and Programs</u>	Streamlining organic certification with CSFO certification
<u>Staffing</u>	Hired 5 new people plus an AmeriCorps member
<u>Technology</u>	resented with a national award from ESRI for the Special Achievement in GIS (SAG) Award for the development of the 'Partner Database'

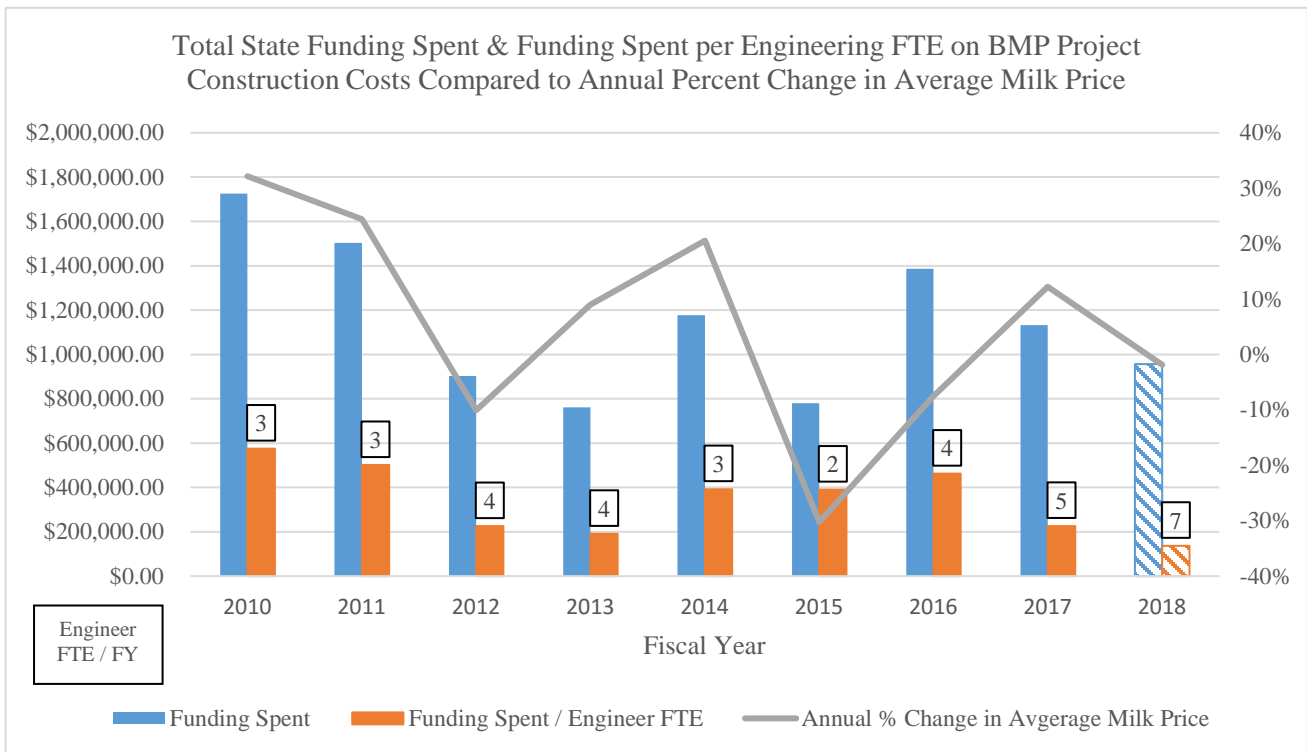
Annual Reporting

<u>Technical & Financial Assistance</u>	Actions	Provide technical assistance, early planning, and coordination to farmers and providers, and award of grants for action and innovation
	Milestones	FY2017 BMP Outlay: \$1.13M; FY2018 Obligation (To Date) \$2.06M

<u>Technical & Financial Assistance</u>	Metrics of Success	TA Visits by Program	BMP: 243 FAP: 20 CREP: 84 CEAP: 1
		Ground Water Samples Taken	Total: 282
		BMP Financial Assistance (FA)	Total BMP FA Awarded: \$1,131,778.21 30 BMP Grants Awarded 79 Total Practices Installed
		FAP	Total FAP FA Awarded: \$76,575.39 24 Farmer Grant Recipients 3,212 Total Acres of Implementation
		Ag-CWIP	Total Ag-CWIP Grants Obligated: \$1,718,000 49 Projects Funded
<u>Engagement and Outreach</u>	Actions	Invest in and enhance outreach and engagement to build partnership, expand participation, increase compliance, and identify connections with local, state, and federal agencies	
	Milestones	Increased number of events and total hours of instruction by 5% and 25%	
	Metrics of Success	Education and Outreach Events	93 Water Quality Education and Outreach Events 3137 Farmer, Partner, and Public Attendees 5,011 Total Hours of Individual Instruction
<u>Rules, Regulations, Permits, and Programs</u>	Actions	Promulgate new rules as deemed necessary by the Agency or required by law and revise and renew existing rules and permits based on new information, scientific research, and experience to date	
	Milestones	Create meaningful and enforceable regulations with increasing compliance rates over time	
	Metrics of Success	Permits Revised	MFO GP Revision Initiated Before Deadline
		Required Reports	Submitted Final TD Report as Required by Legislature
		Rules Revised	Amended RAPs by Rule, effective December 5, 2016
<u>Inspection</u>	Actions	Conduct farm inspections using established procedures and practices in a clear, consistent, and meaningful way to advance compliance with our water quality rules and regulations	
	Milestones	Ensure all inspections are accomplished by statutory requirements	
	Metrics of Success	# Farm Inspections	164 Inspections
		# Farm Compliance Checks	106 Compliance Checks
		# Complaint Investigations and Enforcement Visits	122 Farm Complaint Investigations and Enforcement Visits
Total # Inspections		392 Total Inspection Visits	
<u>Enforcement</u>	Actions	Standardize enforcement procedures and practices and exercise enforcement authority in a clear, consistent, and meaningful way to advance compliance with our water quality rules and regulations	
	Milestones	Increased Compliance Actions by 145 % over 2016	
	Metrics of Success	# Farm Inspections Which Resulted in Enforcement Review	228 Reviews
		# Farm Compliance Checks Which Resulted in Enforcement Review	106 Reviews

		# of Complaint Investigations Which Resulted in Enforcement Review	122 Reviews
		# of Enforcement Actions Issued	93 Enforcement actions Issued (12 Pending)
<u>Quality of Work and Outcomes: Metrics, and Evaluation</u>	Actions	Create, measure, and report on key metrics of success for the Program's work	
	Milestones	Results Based Accountability metrics established for CWF Grant programs in June 2017	
	Metrics of Success	Reporting template developed and shared with external partners grant programs	
<u>Staffing</u>	Actions	Increase both the capacity of existing staff and the appropriate number of staff needed to be successful in new and added legislated responsibilities	
	Milestones	Increase staff to levels needed to fully support technical and engineering services, outreach and engagement, permitting & inspection programs, and enforcement	
	Metrics of Success	Hired five new water quality staff plus onboarded a new AmeriCorps member	
<u>Technology</u>	Actions	Advance technologies to improve efficiency, consistency, and availability of data for staff, farmers, and partners	
	Milestones	Launch and use a 'Partners Database' to provide for consistency in multi-partner and Agency conservation planning, implementation and tracking	
	Metrics of Success	ARMS-WQ was presented with a national award from ESRI for the Special Achievement in GIS (SAG) Award for the development of the 'Partner Database'	

BMP Program Trends 2010 – 2018



BMP Project Examples

CLEAN WATER DIVERSION

A small farm located in the Well's River watershed took the first step to improve the farm's impacts on water quality. Gutters were installed on the heifer barn in 2016 to capture the water that would otherwise fall on the barnyard. Sometimes solutions are as simple as keeping clean water clean.



From left to right, before and after photos of clean water diversion implementation.

COVERED MANURE STACKING FACILITY

In 2016, a covered manure stacking facility was installed on a small 20-cow dairy farm in Royalton, VT. Prior to the covered stacking facility, which was installed through the BMP Program, manure had been stacked in a site that posed a risk to a nearby stream. The covered stacking facility enables the farm to manage manure as a solid, prevent runoff from becoming contaminated, and relieves the management burden of spreading the additional volume of rainfall water.



From left to right, before and after photos show solid manure stacking site implementation.

More details regarding the accomplishments achieved by the Agency of Agriculture, Food and Markets Water Quality Division can be found in the following annual reports:

Financial and Technical Assistance for Agricultural Water Quality Annual Report (6 V.S.A. § 4825)

<https://legislature.vermont.gov/assets/Legislative-Reports/VAAFMA-Annual-Report-On-Financial-and-Technical-Assistance-For-Agricultural-Water-Quality-FY2017.pdf>

Vermont Clean Water Initiative 2017 Investment Report

http://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2017CleanWaterInitiativeInvestmentReport_5MB.pdf

Memorandum of Understanding Between Agency of Natural Resources and Agency of Agriculture, Food and Markets Performance Measures Legislative Report (6 V.S.A. § 4810 (d))

<https://legislature.vermont.gov/assets/Legislative-Reports/2018-01-15-Annual-Report-on-AAFM-ANR-MOU-revised.pdf>

VAAFMA Agricultural Water Quality Enforcement Program 2017 Annual Report

Forthcoming

B) Provide in greater detail, long-term plans for the next 5 years.

***1. What is your agency's five-year plan for clean water?
(If not a five-year plan, please substitute whatever interval you employ.)***

VERMONT PHASE 1 TMDL PLAN 20-YEAR SUMMARY OF NONPOINT SOURCE COMMITMENTS

*** The light blue-shaded tasks are milestones specified in the Lake Champlain TMDLs Accountability Framework – the guide for monitoring progress in the restoration of Lake Champlain.*

A. AGRICULTURE			
<i>Water Quality Permitting Programs – LFO, MFO, CAFO</i>			
Task *	Description	Start Year	End Year
Inspect potential CAFOs	VDEC and AAFCM to inspect medium and large farms that could potentially be CAFOs under VT CAFO permit Inspect 75 potential CAFOs annually	2014 2019	2036 2036
Inspect MFOs and LFOs	AAFCM to inspect MFOs a minimum of every 3 years and LFOs annually.	2014	2036
Update agricultural enforcement MOU	Update the MOU between DEC and AAFCM regarding enforcement of agricultural regulations and program coordination	2016	2016
<i>Accepted Agricultural Practice Rule Update and Compliance</i>			
Amend the State Accepted Agricultural Practices	Amend the AAPs to become the Required Agricultural Practices (RAPs) through rulemaking. Rules changes will include: <ul style="list-style-type: none"> • Develop small farm certification program • Increased buffer sizes on small farms to 25' (consistent with medium and large farm regulations) • Strengthen erosion risk tolerances on all farms to T (from 2T) • 10' buffer requirements for field ditches • Required stabilization of field gully erosion • Strengthening the livestock exclusion requirements. • Develop and require certification of custom manure applicators and ongoing training • Develop and require educational trainings for farmers • Establish standards for soil conservation practices such as cover crops • Require additional site-specific BMPs where necessary to meet water quality standards • Establish standards to increase nutrient management on farms with high soil test phosphorus 	2015	2016
Expand AAP and RAP education and outreach	Begin extensive education and outreach and enforcement of revised Required Agricultural Practices	2014	2036
Develop the Small Farm Inspection program	Establish a SFO inspection group (4 inspectors, 1 supervisor) on Missisquoi Bay and St. Albans Bay	2014	2036

Increase SFO dairy inspections	Complete assessment of all small dairy farms in Missisquoi Bay and St. Albans Bay watersheds;	2017	2022
	Require BMP installation where needed according to CLF Settlement Agreement;	2018	2026
	Complete assessment of all small dairies in South Lake e and Otter Creek basins;	2021	2036
	Require BMP installation where needed on significant t livestock operations in the South Lake Basin	2022	
Increase SFO inspections to other significant livestock operations	Expand small farm inspection program to any significant livestock operations in the Lake Champlain Basin and require BMP installation where needed	2025	2036
Require small farm certification	Require small farms to submit annual certification forms	2017	2036
<i>Nutrient Management Planning</i>			
Increase NMP efforts	Review NMP standards and revise as necessary	2016	2018
	Provide increased financial support for NMP development and management tools	2018	2036
	Expand small farm NMP development courses and workshops, trainings for farmers, manure applicators and technical service providers	2016	2036
Mandate manure applicator certification as part of RAP revision	Mandate certification of custom manure applicators	2016	2036
Expand implementation efforts	Provide education and outreach support grants Provide alternative phosphorus reduction grants. Provide organizational capacity building grants. Increase participation and re-enrollment in CREP program	2016	2036
Revise RAPs to address tile drains	Revise RAPs to include requirements to reduce nutrients from tile drains	2018	2018
<i>Additional Efforts in Critical Watersheds</i>			
Increase inspections in critical watersheds	Target CAFO and SFO inspections	2014	2036
	Conduct North Lake Farm Survey in Missisquoi Bay and St. Albans Bay watersheds	2015	2016
	Expand this comprehensive evaluation to other critical watersheds	2018	2020
	Deploy the strategy outlined in the CLF Settlement Agreement in critical watersheds	2016	2036
Increase implementation in critical watersheds	Prioritize personnel in these areas for water quality improvement projects. Use \$16M RCPP grant funding to implement high priority practices primarily in these watersheds	2014	2036
		2015	2020
Increase technical assistance in critical watersheds	Hire three contractors on retainer to immediately work with farmers following site-specific farm assessment. Target education and support for farmer groups	2016	2018

Develop and pilot VESP	Develop and pilot the Environmental Stewardship Program to incentivize additional practice adoption	2016	2020
Create grassed waterways program	Target funding to critical source areas in coordination with partners	2017	2036
Tile drain research	NRCS grant funding testing of two treatment media for tile drain outflows on farms in Franklin county. Lake Champlain Basin Program funded literature review of tile drain research and expanded tile drain monitoring and assessment in Jewett Brook watershed Encouraging farmers to utilize NRCS <i>Edge of Field Monitoring</i> practice to test additional tile treatment options	2015 2016	2017 2018
Capital Equipment Assistance Program	Reactivate this program to provide funding for the purchase of equipment such as precision record keeping equipment	2017	2036

H. MISSISQUOI BAY – ENHANCED IMPLEMENTATION

AAFM North Lake Survey	Visits to all livestock operations to assess water quality	2015	2015
Address RAP violations; install BMPS	Farms to install site specific BMPs as required and address RAP violations	2015	ongoing
Regional Conservation Partnership Program	Target agricultural and forest landowners to accelerate implementation of NRCS cost-share practices to improve water quality (including land conservation easements and wetland restoration and easements)	2015	2020
Lake Carmi Watershed Land use Survey	Survey historic and current land uses in the watershed to document conservation practices already applied on agricultural fields in the watershed and opportunities for additional implementation.	2017	2018

5 Year NPS Agriculture Program Goals

Farmsteads

1. Continue to implement the BMP program
 - a. Recent expansion to 7 engineers will increase rate of implementation
 - b. Recent policy changes will allow for more projects to be implemented in a shorter time frame
 - c. Created a priority ranking process to gear efforts to highest priority projects for water quality
 - d. Continue work with partners to create alternatives when the BMP costs are greater than the grand list of the farm.
 - e. Educate the private engineering sector to perform on farm design and construction oversight
 - f. Through permitting, inspection and enforcement ensure that all farms have sufficient storage to meet regulatory requirements and prevent overtopping due to capacity.
 - g. Develop new BMP standards for silage leachate under-drain management and assess alternatives such as supporting ag-bags versus complex silage leachate management systems on smaller farms.

Cropland Management

1. Expand the ability for farms to implement alternative practices such as no-till, manure injection, and successful cover cropping through cost-share opportunities (CEAP and FAP) along with technical assistance grants to partners.
 - a. Cover crops on all frequently flooded farm fields under NMP
 - b. All farms regardless of size and type meeting a sustainable erosion standard by implementing practices that fit their farm to control the erosion
 - c. Increase the amount of funding provided to CEAP (\$1M in FY2018 round)
 - d. Continue to successfully implement the Custom Manure Applicator certification program through continued educational opportunities for applicators to receive educational credits, random compliance checks and normal on farm inspections. 78 Custom Manure Applicators were certified through the program in CY 2017 - 2018
 - e. Provide grant opportunities to partners to provide on farm workshops and demonstration sites to educate farmers about how to change to alternative practices on their own farm.
2. Minimize surface runoff losses of phosphorus from cropland through nutrient management strategies and continue to increase the inspection and enforcement to ensure better implementation throughout VT.
 - a. Expanded manure spreading ban on sensitive fields along rivers starting in October and ending in April.
 - b. Continue focus on record keeping and reconciliation in the NMP process through inspection, permitting and enforcement processes
 - c. Work with the technical partners to integrate whole farm nutrient management into the standard for NMP (Cornell Mass Balance)
 - d. Ensure the recent changes to the UVM crop recommendations that reduced phosphorus crop requirements for corn by 20% is implemented in NMPs through annual reviews of the LFO annual reports.
 - e. Review NMPs to make sure the new P-Index is being used and hold farms accountable to use the tool correctly.
 - f. Develop a strategy internally that would allow the Agency of Agriculture, Food & Markets to create a certification program for technical service providers who write NMPs such that the liability of the planning is through a professional license as opposed to the client (farmer).
 - g. Develop BMPs for tiles to remove phosphorus losses and identify metrics to prioritize where these BMPs would be most effective.

Pasture Management

1. Increase support for grazing to improve water quality through CWF grants to partners
2. Implement a declining cost-share program for fencing livestock out of surface water through CWF grants to partners

Overarching Strategies

1. Continue to support through CWF grants the private sector to assist us in developing nutrient accountability metrics and to research how that can be integrated into nutrient trading policies that aim at reducing phosphorus from agriculture.
2. Through the private sector, continue to refine the accountability tools in a way that helps farms understand their individual phosphorus reduction targets and make those targets based on loading from a watershed assessment perspective and the practices farms are doing to address phosphorus. Allow this tool to help a farm plan for future practices as well by making phosphorus reduction estimates as a factor in decision making.
3. Learn from the ongoing feasibility study on the potential for a “treatment train” – in-stream phosphorus remediation strategy – in the Jewett Brook watershed and if successful, move into the next phase of project development.
4. Implement the Revised Secretary’s Decision in Missisquoi and St. Albans Bay watershed and make a decision on whether to implement in the South Lake and Otter Creek watersheds. This effort includes utilizing more tools to identify critical sources areas in the landscape and making sure farmsteads are managed in compliance with water quality regulations.
5. Monitor groundwater for phosphorus and identify whether there are key areas in the state where phosphorus in groundwater is more elevated than other areas and whether there are consistent factors from agriculture driving those elevated levels such as legacy loading concerns.
6. Continue to make sure all farms seeking to sell their development rights are given an inspection and are in compliance with all water quality regulations with a goal of getting compliance prior to closing. In the interim, ensure each farm with compliance issues are on a compliance schedule followed through enforcement by the Agency to be addressed as quickly as possible after closing.
7. Gather NMP data in order to increase the accountability for practices by watershed and be able to identify watershed specific risk factors that require focused implementation efforts that may vary from other watersheds. Create a web interface that allows for aggregated NMP information to be shared with the public as part of the annual accountability for agricultural non-point source pollution reduction efforts and strategies.
8. Building the data set for tile drain monitoring such that the data can be utilized to tease out whether specific conservation practice efforts are beneficial or degrading to water quality phosphorus losses and then promote the appropriate practices potentially through regulatory efforts if sufficient data is available.

2. How do you build your plan and replenish it to ensure you have ample planned, budgeted, and scheduled projects in your five-year plan?

VAAFM
Water Quality
Division

Strategic Plan

2017 to 2022



AGENCY OF AGRICULTURE, FOOD & MARKETS



AGENCY OF AGRICULTURE, FOOD & MARKETS

VAAFMM Water Quality Program Strategic Plan: Summary

More than 1.2 million acres of Vermont land is devoted to farming, and agriculture is one of our most important industries. As a whole, agriculture preserves open land, provides healthy local foods, and is an essential part of Vermont’s identity.

At the same time, Vermont’s waters are critical to the state’s economy and to residents’ quality of life. The Water Quality Program within the Agency of Agriculture, Food and Markets (VAAFMM) utilizes farmer assistance, education, research, regulations, monitoring, and compliance and enforcement that simultaneously promote the long-term viability of farms and the health of our state waterways. To advance its work, the Water Quality Program has developed a strategic plan to guide its efforts from 2017 to 2020. This Summary captures the key elements of the strategic plan.

Vision	Viable and thriving farms across Vermont, large and small, are protecting and enhancing water quality to maintain healthy streams, rivers, lakes, and drinking water.
Mission	The VAAFMM Water Quality Program works with farmers to improve water quality on and from Vermont farmlands to improve and protect Vermont’s water resources.
Values	<p>Efficient in implementation and practice through well trained staff, practical application of rules, regulations, and procedures, and harnessing technology</p> <p>Engaging, where staff reach out and engage farmers, residents, and stakeholders in an on-going, clear, and sustained manner</p> <p>Rigor in applying standards, conducting inspections, undertaking enforcement as required, and ensuring compliance</p> <p>Fair in treating farms of different scales and kinds consistently</p> <p>Responsive to the unique circumstances of geography, topography, soil type, kind of farming, and relation to water resources</p> <p>Evidence-based, seeking actions, projects, and programs that are based in science and data</p>

To realize this vision, and to accomplish the mission with the values asserted, the following are goals laid out for 2017-2020 under key areas of work.

Technical Assistance (TA)	Increase technical assistance, early planning, coordination among provisions and providers, and award of grants for action and innovation
Engagement and Outreach	Invest in and enhance outreach and engagement to build partnership, expand participation, increase compliance, and identify connections with local, state, and federal agencies
Rules, Regulations, and Permit	Promulgate new rules as required by law and revise and renew existing rules and permits based on learning, scientific research, and experience to date
Inspection	Standardize inspection procedures and practices in a clear, consistent, and meaningful way to advance compliance with our water quality rules and regulations
Enforcement	Standardize enforcement procedures and practices and exercise enforcement authority in a clear, consistent, and meaningful way to advance compliance with our water quality rules and regulations
Quality of Work and Outcomes, Metrics, and Evaluation	Create, measure, and report on key metrics of success for the Program's work
Staffing	Increase both the capacity of existing staff and the number of staff needed to be successful in new and added legislated responsibilities
Technology	Advance technologies to improve efficiency, consistency, and availability of data for staff, farmers, and partners

Strategic Plan:

Detailed Goals and Actions

To realize this vision, and to accomplish the mission with the values asserted, the following are goals and objectives laid out for 2017-2020 under key areas of work. Per each area, further detail as to actions, description, milestones, and key metrics are included in detailed matrices in a separate document. Key tasks under these areas and actions are also detailed in a work plan as a separate document.

- a. **Rules, Regulations, and Permit:** Promulgate new rules as required by law and revise and renew existing rules and permits based on learning, scientific research, and experience to date.
 - i. Educate and promote Required Agricultural Practices (RAP) across the state to farms and farmers and associated stakeholders
 - 1. Under the RAPs, create and maintain a Customer Manure Applicator certification program
 - ii. Design and implement the Certified Small Farm Operation (CSFO) Program
 - iii. Design, draft, or renew key rules and permits
 - 1. Revise Medium Farm Operation General Permit (MFO GP)
 - 2. Large Farming Operation (LFO) rules
 - 3. Best Management Practice (BMP) rules
 - iv. Develop procedures and practices for interagency communication for VAAFMM permitting
- b. **Inspection:** Standardize inspection procedures and practices in a clear, consistent, and meaningful way to advance compliance with our water quality rules and regulations
 - i. Establish and adhere to a schedule for regular inspections across farm sizes, programs, and priority watersheds
 - ii. Implement, track, and follow the Conservation Law Foundation (CLF) agreement
 - iii. Standardize inspection processes through written procedures, creating visualizations and process flow diagrams, and increased staff training for consistency and predictability
 - iv. Uphold the Memorandum of Understanding between VAAFMM and Department of Environmental Conservation (DEC) for the Implementation and Enforcement of Agricultural Water Quality Programs
 - v. Increase efficiency in inspections to provide more capacity and time for engaging and supporting the inspected community

- c. **Enforcement:** Standardize enforcement procedures and practices and exercise enforcement authority in a clear, consistent, and meaningful way to advance compliance with our water quality rules and regulations
 - i. Implement, track, and follow the CLF agreement
 - ii. Implement and track routine enforcement matters
 - iii. Standardize enforcement process discussion meetings
 - iv. Standardize enforcement processes through written procedures and other tools
 - v. Standardize reporting to Attorney General's Office
 - vi. Training of staff on enforcement matters
 - vii. Uphold the Memorandum of Understanding for the Implementation and Enforcement of Agricultural Water Quality Programs
- d. **Technical Assistance (TA):** Increase technical assistance, early planning, coordination among provisions and providers, and award of grants for action and innovation.
 - i. Enhance TA contractor consistency and effectiveness through training, written guidance, and certification
 - ii. Develop clear, consistent, predictable, and responsive processes for our customers to request and receive technical assistance
 - iii. Develop policies for technical assistance to ensure effective record-keeping, appropriate expansions, and appropriate connections to regulatory programs and requirements
 - iv. Coordinate and connect various state and federal technical assistance programs to ensure efficiency and maximum benefit to farms.
 - 1. EQIP/BMP
 - 2. RCPP
 - 3. VESP
 - 4. FAP/NMP Program
 - 5. North Lake Contractors
 - 6. Clean Water Fund (CWF)
 - 7. DEC Permits
 - 8. Tactical Basin Planning
 - 9. CREP
 - v. Ensure early planning under Nutrient Management Plans (NMPs) and other activities to ensure proposed projects better fit the overall needs of the farm, water quality, and the capacity of the farm to implement

- vi. Develop, advance and improve key programs
 1. Develop the Critical Area Seeding and Filter Strip Program
 2. Develop the BMP Challenge Program to advance learning and innovation
 3. Develop and implement the Vermont Environmental Stewardship Program pilot
 4. Advance and improve (NMPs)
- e. **Engagement and Outreach:** Invest in and enhance outreach and engagement to build partnership, expand participation, increase compliance, and identify connections with local, state, and federal agencies.
 - i. Engage stakeholders intensively to advise, build, educate about, implement, and improve programs
 - ii. Provide consistent communications in the field that promote change within the regulated community and provides for the Division to be the place that the regulated community feels comfortable contacting to resolve problems, ask questions or seek compliance assistance.
 - iii. Develop and maintain a single Required Agricultural Practices (RAP) Guidance document
 - iv. Develop and maintain a single LFO Permit Management Guidance document that is shared with TSPs and farmers as a place where all information is maintained.
 - v. Collaborate, implement and facilitate appropriate outreach and communication activities for activities such as technical assistance, small farm certification program, on-going CLF process, and watershed-specific activities.
- f. **Staffing:** Increase both the capacity of existing staff and the number of staff needed to be successful in new and added legislated responsibilities
 - i. Build a team well versed in rules, programs, services, and accountability metrics across the division
 - ii. Increase staff capacity and consistency in inspections, programs, permitting, outreach and engagement through training, education, and learning across areas of work
 - iii. Increase staff to support technical and engineering services, outreach and engagement, permitting and inspection programs, and enforcement
- g. **Technology:** Advance technologies to improve efficiency, consistency, and availability of data for staff, farmers, and partners
 - i. Complete the Food Safety Database as the tool for increasing consistency and coordination for inspection and enforcement
 - ii. Establish a method to more easily track grants and contracts.
 - iii. Launch and use a Partners database

- iv. Launch and use FarmEditor that is linked with the Food Safety Database
 - v. Identify and implement best approaches to efficient use of spatial (GIS) technology
 - vi. Utilize technology to share data, programmatic information and applications, and accountability metrics to best inform and support our customers
 - vii. Explore field-based technologies to support staff and customers
- h. **Quality of Work and Outcomes, Metrics and Evaluation:** Create, measure, and report on key metrics of success for the Division's work
- i. Establish and adhere to a Division work plan for numerous tasks and activities
 - ii. Ensure clear value for farmers regarding service provided in a timely, regular, and consistent manner
 - iii. Develop Results Based Accountability metrics that all water quality initiatives are tracked
 - iv. Identify and track metrics for social and behavioral change related to outreach and engagement
 - v. Utilize state-wide tools such as LEAN and PIVOT



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List of BMP Applicants from FY 2017 to Date

This table tabulates the size of farm, county, practices applied for and date of application. This represents the pool of outstanding applicants which the Agency is stretched past current capacity to service on an annual implementation basis.

	A	B	C	D
31	MFO		Manure/waste storage/Waster transfer/Access road/Barnyard heavy use/Clean water diversion	2/23/2017
32	SF	Grand Isle	Manure/waste storage/waste/wash water/barnyard or heavy use/laneway	2/27/2017
33	Non-RAP	Grand Isle	Barnyard or heavy use runoff/laneway develepment/exclusion	2/27/2017
34	MFO		Heavy use runoff/manure pit pipe	2/27/2017
35	SFO		Manure/waste storage/Access rd/ Barnyard heavy use/Exclusion	2/28/2017
36	SFO		Manure/waste storage/barnyard or heavy use runoff	2/28/2017
37	LFO	Addison	Asst W/ EQIP Project	2/28/2017
38	SFO	Orleans	Barnyard or heavy use runoff/Clean water diversion	3/1/2017
39	SFO	Addison	Manure/waste storage/Access road/Barnyard or heavy use/Clean water diverson/Exclusion	3/1/2017
40	SFO	Addison	Access Rd	3/2/2017
41	MFO	Bennington	Manure/waste storage/waster transfer/access road	3/3/2017
42	MFO		MHW collection	3/3/2017
43	SFO	Addison	Barnyard expansion/laneway development	3/3/2017
44	MFO	Franklin	Waste transfer system	3/13/2017
45	SFO	Bennington	Manure/waste storage/barnyard or heavy use runoff/Clean water diversion/Exclusion fencing	3/14/2017
46	LFO	Orleans	Barnyard or heavy use runnoff/Clean water diversion	3/14/2017
47	SFO	Franklin	Manure/waste storage/Clean water diversion	3/17/2017
48	LFO	Addison	Manure/waste storage/waste transer/waste/wash water storage/branyard or heavy use/clean water diversion	3/17/2017
49	CSFO		Manure/waste storage/New barn/Barnyard or heavy use/Exclusion	3/21/2017
50	LFO		Barnyard / HUA runoff control	3/21/2017
51	SFO	Addison	Waste transfer system/Waster/wash water storage/Irrigation equipment	3/21/2017
52	CSFO	Addison	Barnyard or heavy use runoff	3/21/2017
53	MFO	Addison	Waster transfer/Silage or leachate treatment	3/21/2017
54	CSFO		Manure/waster storage/Waster transfer/Waste/wash water storage/Access Rd	3/21/2017
55	MFO		Manure/waste storage/Waster transfer	3/23/2017
56	CSFO		Barnyard or heavy use/Silage or feed leachate	3/24/2017
57	CSFO		Silage or feed leachate/Barnyard or heavy use	3/24/2017
58	CSFO	Franklin	Reel irrigation for leachate pond	3/24/2017
59	CSFO		Manure/waster storage/Clean water diversion	3/29/2017
60	MFO	Rutland	WSF, waste xfer, +	3/29/2017
61	CSFO	Addison	Manure/waste storage/Waste transfer/Silage/Barnyard	3/30/2017
62	CSFO	Rutland	Manure/waste storage/Barnyard/clean water diversion	3/31/2017
63	MFO	Franklin	Manure/waste storage/Access road/Animal mortality/fuel tanks	3/31/2017
64	MFO	Addison	Manure/waste storage/Waste Transfer/Clean water diverson	4/4/2017
65	SFO		Manure/waste storage/Silage or feed leachate/Access rd/Waste food	4/5/2017
66	CSFO		Laneway /Exclusion	4/6/2017

	A	B	C	D
67	CSFO	Franklin	Barnyard or heavy use/Clean water diversion	4/6/2017
68	MFO		Maure/waste storage/Silage or feed leachate/barnyard/heavy use/clean water diversion	4/7/2017
69	SFO	Franklin	Barnyard or heavy use	4/7/2017
70		Franklin	Manure Pit/Heavy use/barnyard	4/7/2017
71	CSFO	Franklin	Water Transfer/Waste wash water storage/Barnyard for heavy use	4/12/2017
72	MFO	Orleans	Manure/waste storage/Waste wash water treatment	4/12/2017
73	CSFO	Addison	Barnyard or heavy use	4/12/2017
74	LFO	Orange	Manure/waste storage/waste transfer/waste/wash water storage	4/12/2017
75	CSFO	?	Manure/waste storage/transter/wash water/Leachate	4/17/2017
76	CSFO	Rutland	Manure/waste storage/transfer/wash water storage/access rd/heavy use area/clean water diversion etc.	4/19/2017
77	SFO	Franklin	Manure/waste storage/access rd/heavy use area/clean water diversion	4/19/2017
78	SFO	Grand Isle	Composting Facility	4/20/2017
79	SFO	Orange	Manure/waste storatge/barnyard or heavy use runoff/clean water diversion	5/15/2017
80	MFO	Addison	HUA runoff, bunker runoff pump station	5/15/2017
81	SFO	Rutland	Barnyard or heavy use runoff/laneway development/stream crossing	5/15/2017
82	MFO	Orleans	Manure/waste storage/barnyard or heavy use/clean water diversion	5/15/2017
83	MFO	Franklin	Construct pad for leachate flow to storage area	5/15/2017
84	CSFO	Chittenden	Manure/waste storage/Waste transfer/Waste wash water storage/treatment/Silage leachate/	5/15/2017
85	CSFO		waste transfer system	5/17/2017
86	CSFO	Addison	Silage leachate	5/24/2017
87	CSFO	Orleans	EQIP assist, Waste Storage	6/2/2017
88	SFO	Orange	Manure/waste storage/acdcess rd/runoff control/clean water diversion/laneway/streem crossing	6/19/2017
89	CSFO	Addison	Barnyard or heavy use area runoff	6/19/2017
90	MFO	Windham	Silage or feed leachate/Barnyard or heavy use/clean water diversion	6/19/2017
91	CSFO	Orleans	Manure/waste storage/access rd/runoff contral/clean water diverson/laneway/stream crossing	6/19/2017
92	CSFO	Orleans	leachate treatment/runoff control/clean water diversion/laneway stream crossing/exclusion	6/22/2017
93	CSFO	Orange	Waster/wash water storage	6/29/2017
94	CSFO	Franklin	Barnyard or heavy use runogg	6/29/2017
95	CSFO	Washington	Clean water diversion	7/7/2017
96	MFO	Franklin	Manure/waste storage/waste strasfer system/silage leachate/access road for stacking/barnyard HOA runoff	7/13/2017
97	LFO	Orange	barnyard runoff control/clean water diversion	7/18/2017
98	SFO	Orleans	waste storage/wash water storage/barnyard runoff/clean water diversion	7/19/2017
99	CSFO	Orleans	barnyard runoff/laneway development	7/20/2017

	A	B	C	D
100	CSFO	Franklin	Manure/waste storage/Waste/wash water treatment/Barnyard or heavy use runoff/laneway development	8/7/2017
101	Non-RAP/SFO	Windsor	Barnyard or heavy use runoff/Access road/Laneway Development	8/7/2017
102	CSFO	Addison	Manure/waste storage/waste transfer/waste/wash water/leachate treatment,access rd/clean water diversion	8/8/2017
103	LFO	Franklin	Silage or feed leachate treatment/curtain drain around bunk	8/28/2017
104	CSFO	Grand Isle	Manure/waste storage/waste/wash water/clean water diversion	9/1/2017
105	MFO	Bennington	Manure/waste storage/Covered barnyard	9/7/2017
106	CSFO	Addison	Silage or feed leachate treatment	9/7/2017
107	CSFO	Addison	clean water diversion	9/7/2017
108	SFO	Addison	Barnyard or heavy use runoff/Heifer barn	9/18/2017
109	SFO	Rutland	Manure/waste storage/Barnyard or heavy use	9/18/2017
110	SFO	Addison	Manure/waste storage/barnyard or heavy use/clean water diversion/laneway development/exclusion	9/18/2017
111	CSFO	Washington	Manure/waste storage/Waste/wash water treatment/	9/18/2017
112	SFO	Orleans	Waste/wash water storage	9/18/2017
113	CSFO	Orleans	Manure/waste storage/Waste/waste water treatment/Access road/Barnyard or heavy use/Clean water diversion/Exclusion	9/18/2017
114	CSFO	Orleans	Waste/wash water treatment/Barnyard or heavy use/Laneway development	9/18/2017
115	MFO	Essex	Manure/waste storage/barnyard or heavy use/clean water diversion	9/21/2017
116	MFO	Addison	Farm access rd & culvert or bridge	10/12/2017
117	CSFO	Caledonia	Clean Water diversion/Exclusion fencing	10/20/2017
118	SFO	Windsor	Manure/waste storage	10/23/2017
119	LFO	Addison	Silage or feed leachate	10/30/2017
120	MFO	Addison	Manure/waste storage	10/30/2017
121	CSFO	Franklin	Clean water diversion	11/1/2017
122	MFO	Franklin	Manure/waste storage/waste transfer system	11/13/2017
123	LFO	Orleans	Manure/waste storage/Clean water diversion	11/13/2017
124	MFO	Addison	Waste/wash water storage & treatment	11/22/2017
125	MFO	Addison	Manure/waste storage/Access road/Barnyard or heavy use	11/22/2017
126	MFO	Windsor	Manure/waste storage/Barnyard or heavy use/Clean water diversion	11/28/2017
127	CSFO	Orange	Manure/waste storage/Access road/Barnyard or heavy use	12/4/2017
128	SFO	Windsor	Unsure	12/6/2017
129	CSFO	Franklin	Laneway development/stream crossing	12/7/2017
130	SFO	Windsor	Waste Water Treatment	12/7/2017

	A	B	C	D
131	CSFO	Franklin	Manure/waste storage/Waster transfer system/Access road/Barnyard or heavy use/Clean water diversion/Laneway development	12/11/2017
132	CSFO	Addison	Waste transfer/Waste/wash water treatment/Silage or feed leachate treatment	12/12/2017
133	CSFO	Franklin	Manure/waste storage/Waste/wash water treatment/Access road/Barnyard or heavy use/Clean water diversion/Laneway development	12/14/2017
134	SFO	Washington	Manure/waste storage/Waste/wash water treatment	12/19/2017
135	CSFO	Rutland	Laneway development/stream crossing	12/21/2017
136	CSFO	Addison	Waste transfer system/Access road/Clean water diversion	12/21/2017
137	CSFO	Orleans	Laneway development	12/28/2017
138	CSFO	Essex	Slab to stack solid manure/Access rd/Barnyard or heavy use runoff/Clean water diversion/Laneway development	1/2/2018
139	CSFO	Orleans	Manure/waste storage/Access rd/Barnyard or heavy use/Clean water diversion/Laneway development/Exclusion	1/2/2018

3. What is the basis for developing your plan? Do you begin, for example, with the state's Tactical Basin Plans (e.g. watershed by watershed)?

1. Statutory Requirements

The Vermont Agency of Agriculture, Food and Markets Water Quality Division first looks to the statutory requirements set out for the Agency by the Vermont Legislature. The need to satisfy basic statutory requirements dictate much of the Agency's inspection, enforcement, rule and program development and implementation. Chapter 215 of Title 6 is instructive as to the Agency's mission to provide education outreach, technical and financial assistance, and where necessary to achieve compliance enforcement – to protect and enhance water quality.

§ 4801. Purpose; State policy

It is the purpose of this chapter to ensure that agricultural animal wastes do not enter the waters of this State. Therefore, it is State policy that:

(1) All farms meet certain standards in the handling and disposal of animal wastes, as provided by this chapter, and 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. Accordingly, State and federal funds shall be made available to farms, regardless of size, to defray the major cost of complying with the requirements of this chapter. State and federal conservation programs to assist farmers should be directed to those farms that need to improve their infrastructure to prohibit direct discharges or bring existing water pollution control structures into compliance with U.S. Department of Agriculture (U.S.D.A.) Natural Resources Conservation Service standards. Additional resources should be directed to education and technical assistance for farmers to improve the management of agricultural wastes and protect water quality.

(2) Officials who administer the provisions of this chapter:

(A) shall educate farmers and other affected citizens on requirements of this chapter through an outreach collaboration with farm associations and other community groups;

(B) shall, in the process of rendering official decisions, afford farmers and other affected citizens an opportunity to be heard and give consideration to all interests expressed; and

(C) may provide grants from a program established under this chapter to eligible Vermont municipalities, local or regional governmental agencies, nonprofit organizations, and citizen groups in order to provide direct financial assistance to farms in implementing conservation practices. (Added 2003, No. 149 (Adj. Sess.), § 2, eff. June 3, 2004; amended 2013, No. 83, § 10, eff. June 10, 2013.)

6 V.S.A. Chapter 215 goes out to enumerate numerous statewide requirements on varying timelines which VAAFMM must meet to ensure agricultural operations are complying with state water quality requirements. Chapter 215 provides, but is not limited to, the following requirements of VAAFMM

1. AAFMM will inspect all LFOs and MFOs throughout
 - a. All LFOs annually
 - b. All MFOs every three years
 - c. All CSFOs every seven years
 - d. Respond and inspect all agricultural nonpoint source pollution complaints.

Act 64 of 2015 further provided additional requirements for VAAFMM the Act amended or enacted multiple statutes related to water quality in the State. The act amends several provisions regarding agricultural water quality. The “accepted agricultural practices” were renamed the “required agricultural practices (RAPs).” The Agency of Agriculture, Food and Markets (AAFMM) revised the RAPs by rule by December 6, 2016. The revised RAPs included requirements for: small farm certification, nutrient storage, soil health, buffer zones, livestock exclusion, nutrient management, and tile drainage.

Beginning on July 1, 2017, small farms shall certify compliance with the RAPs. Small farms are a parcel of land on which 10 or more acres are used for farming and that: (1) houses no more than the maximum number of animals for a small farm; and (2) houses at least the number of animals set by rule; or produces crops for sale. AAFM may specify in rule those small farms that are not required to submit a certification, but to which RAPs still apply. AAFM may inspect small farms, and shall adopt in rule the frequency of small farm inspection. AAFM shall inspect large farms at least once a year and medium farms at least once every three years.

The act further provided that if a farm meets RAPs, but there is potential for pollutants to enter waters, AAFM shall require a site-specific conservation practice on the farm. The requirement that financial assistance be available before AAFM requires a BMP is deleted. AAFM and the Agency of Natural Resources (ANR) shall revise a memorandum of understanding (MOU) for agricultural nonpoint pollutants, and the MOU shall address how to apply the antidegradation implementation policy to new sources of nonpoint pollutants.

The act required AAFM to adopt, as part of the RAP revisions, requirements for training owners or operators of small, medium, and large farms regarding: prevention of discharges to waters; mitigation of stormwater runoff; land application of manure or nutrients; and nutrient management planning. AAFM shall require training as a condition of a large farm permit, medium farm permit, or small farm certification. AAFM may phase in training requirements based on farm size, permit type, or available staffing and may authorize third parties to conduct the training. AAFM shall not charge the owner or operator of a farm for the required training but shall pay for the training from funds available for water quality initiatives.

AAFM was instructed adopt by rule requirements for certification of custom applicators. A custom applicator is a person engaged in the business of land-applying manure or nutrients for compensation. Custom applicators shall complete eight hours of training over each five-year period. The training shall address methods to minimize runoff and identify weather or soil conditions that increase runoff.

2. Revised Secretary's Decision

While the RAPs are an essential component of protecting and improving water quality statewide, the Revised Secretary's Decision makes a threshold determination that BMPs are necessary in the Missisquoi Bay Basin to achieve compliance with Vermont's water quality goals. The Revised Decision provides a framework for outreach, education and assessment of farms in the watershed and a process for farm-specific development and implementation of a Farm Plan to address identified water quality resource concerns, where needed. Farm assessments may conclude that practices required by the RAPs are sufficient to protect water quality and that BMPs may not be required due to a farm's specific characteristics or management.

The Revised Decision lays out a timetable by which VAAFMM will provide outreach and conduct Assessments of farms in the Watershed pursuant to the terms of this Revised Secretary's Decision and will assure the implementation of BMPs on specific farms in accordance with the framework and timeframes outlined in the Decision. Farmers will need to develop plans which are reviewed and approved by VAAFMM and they will then implement them to ensure water quality standards are met by their operation. This process can extend for up to 20 years in the Missisquoi Bay Basin Watershed, and the Agency must conduct assessments in St. Albans, Otter Creek, and South Lake Watersheds to ascertain whether or not additional BMPs are needed in those watersheds. This agreement sets out a significant body of work for plan and practice development and implementation.

3. Strategic Watersheds

The Strategic Watershed Planning Approach was created to accelerate improved water quality in critical areas by collaborating with partners to provide outreach, education, technical, and financial assistance to agricultural producers. This effort was led by USDA NRCS and will help farmers in meeting the agricultural phosphorus reductions identified in the Lake Champlain Total Maximum Daily Load (TMDL) and requirements laid out by Act 64 of 2015.

State, federal and local partners developed a multi-factor ranking process to identify the most critical subwatersheds for accelerated agricultural conservation practice implementation. Factors included, but were not limited to, the amount of

agricultural phosphorus runoff to the lake, areas with the most significant water quality problems, and watersheds with significant public interest.

Beginning in 2016, four watersheds were selected for accelerated and targeted agricultural practice implementation over the next 5 years. The four watersheds selected were the:

- Rock River
- Pike River
- St. Albans Bay
- McKenzie Brook Watershed

NRCS developed watershed plans for each of the selected watersheds in collaboration. These plans include: a resource assessment for the watershed, development of watershed phosphorus reduction goals that are tied to the new TMDL requirements, and detailed action plans to implement the plan. The development of the plans was guided by local watershed groups, comprised of state and federal partners, local watershed groups, concerned citizens, and local farmers.

The watershed plans will be used by NRCS and partners to:

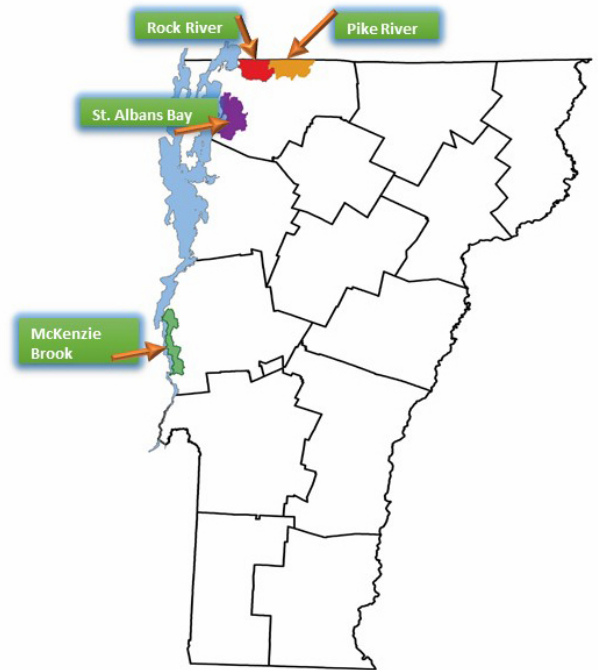
- Identify potential critical areas on farms for conservation practice implementation
- Set phosphorus reduction and practice implementation goals for each watershed
- Estimate funding required to implement needed conservation practices
- Identify actions required to meet goals in each watershed
- Track progress in reaching goals over time

NRCS partners in this project include: Vermont Agency of Natural Resources-Department of Environmental Conservation; Vermont Agency of Ag, Food, and Markets; USDA Farm Service Agency; Vermont Association of Conservation Districts; Lake Champlain Basin Program; University of Vermont Cooperative Extension; the US Fish and Wildlife Service; the Friends of Northern Lake Champlain; the Champlain Valley Farmers Association; St. Albans Area Watershed Association; Franklin Watershed Association; and the Lake Carmi Watershed Association.

This approach prioritizes education, outreach, inspection, technical and financial assistance in areas where strategic implementation of practices will have the largest positive effect on water quality. This approach is based, in part, on the Critical Source Area approach to watershed planning. Critical source areas are areas of the landscape that contribute disproportionately high levels of nonpoint source (NPS) pollution relative to other areas. When it comes to reducing NPS pollution, identifying and targeting CSAs can give you the biggest “bang for your buck”. VAAFM has collaborated with the Lake Champlain Basin Program and other partners to model phosphorus CSAs in the Missisquoi Bay watershed for use as a natural resource planning tool, and with the United States Department of Agriculture Natural Resources Conservation Service (NRCS) to implement conservation practices on confirmed phosphorus CSAs.

4. Tactical Basin Plans

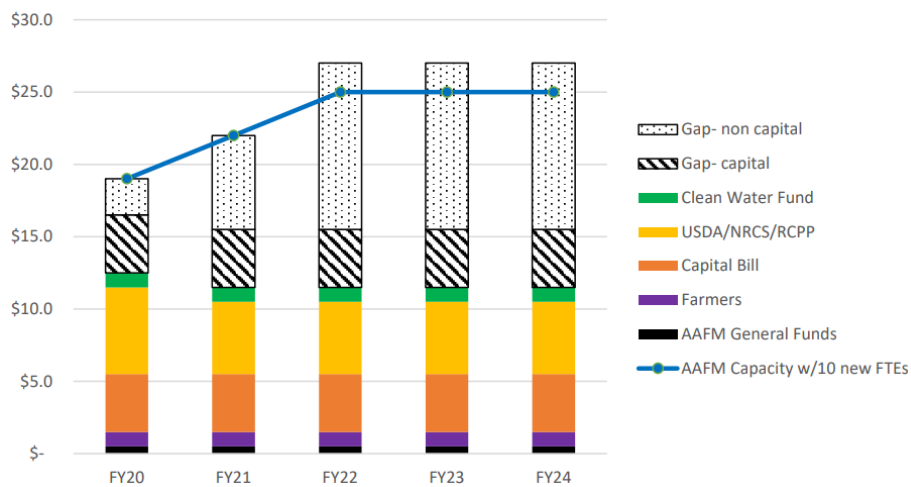
Tactical basin plans focus on the projects or actions needed to protect or restore specific waters and identify appropriate funding sources to complete the work, based on monitoring and assessment data. Since these tactical plans will guide all watershed work supported by the Watershed Management Division, the issues identified in these plans are the ones that will be prioritized for management attention, including funding. Tactical Basin Plans integrate priority items from complementary plans, including River Corridor Plans, Stormwater Master Plans, Backroads Inventories, and Agricultural Environmental Assessments.



The Four Strategic Watersheds

Through continued water quality monitoring, data and analytics, reviewing Tactical Basin Plans in addition to collaboration with local partners and basin planners, the Agency of Agriculture has established the following priority areas for Small Farm Inspections. Farming operations that are located within impaired or threatened watersheds or watersheds that have an established Total Maximum Daily Load (TMDL) will be the first CSFOs visited by their regional Small Farm Coordinators. A TMDL is essentially a nutrient budget for a water body. In areas where too many nutrients are going into water bodies, the TMDL provides a diet plan – a way to reduce nutrient inputs. The goal of this program is to support farmers to ensure their clear understanding of new statewide agricultural management rules – the RAPs, while providing assistance to assess, plan and implement any necessary conservation and management practices that might be necessary to meet water quality goals. Regardless of a farm’s certification status, initial farm visits will occur based on farm location within impaired watersheds and will entail an initial ‘meet and greet’ visit to better get to know the farm and the farm operator, and to allow for Inspectors to answer questions and explain the new rules in detail.

4. “What is the budget associated with that five-year plan? And within that budget, please specify capital versus non-capital dollars.



The Treasurer’s Report (1/15/2017) estimated that the agricultural sector’s Tier 1 cost of complying with the TMDLs and the Vermont Clean Water Act of 2015 averaged \$27million a year over 20 years. Of this, \$8 million are capital costs and \$19 million are noncapital costs. Capital costs include implementation of best management practices (BMPs) for production areas and livestock exclusion infrastructure. Non-capital costs include development of nutrient management plans, deployment of agronomic practices and field-based conservation measures such as cover cropping, technical assistance and training. The graph above shows a gap for both capital and non-capital costs in the agricultural sector.

The Agency of Agriculture, Food and Markets (AAFM) is currently delivering approximately \$6 million in technical and financial assistance programming to farmers each year. USDA’s Natural Resource Conservation Service (NRCS) delivers another \$5 million in technical and financial assistance. Farmers are expected to contribute \$1 million each year in cost share. The delivery mechanism for AAFM’s technical assistance is nearly completely outsourced through grants or contracts to organizations in Vermont who work directly with farmers to develop projects and oversee the implementation. The financial assistance is mostly through direct grant agreements between AAFM and farms.

The capacity needed to meet agricultural clean water goals does not currently exist within the agriculture sector – AAFM, NRCS and farm partners – to deliver \$27 million in technical and financial assistance programming. AAFM is working on plans to increase the agency’s capacity to deliver services to farmers. Specifically, AAFM continues to implement the new Certified Small Farm Operation (CSFO) inspection program, which results in roughly 100 farm inspections annually, along with increased numbers of inspections on the medium and large farms due to changes in statutory requirements. These inspections will increase the demand for capital improvement projects on farms over time as farmers work to resolve the concerns identified during these inspections. AAFM envisions that the demand to address non-point

source pollution challenges identified through inspection will ramp up and exceed the current resource allocations of state and federal agencies by SFY 2022, as at that point there will be 300 completed CSFO inspections in addition to the medium and large farm inspections. To meet the projected need, AAFM envisions that additional staffing and financial assistance will be required beginning in SFY 2022.

The Agency of Agriculture's current process of implementing the new certified small farm inspection program, along with increased numbers of inspections on the medium and large farms due to changes in statutory requirements, has and will continue to increase the demand for capital improvement projects on farms. The Agency is also moving towards expanding the focus of our conservation efforts to increased implementation of field management practices through nutrient management plans and associated conservation practices necessary to achieve these plans. Field practices and nutrient management planning are not capital eligible projects and tend to have higher overall costs simply due to the volume of acres that fall into this category. Production area projects, while expensive, tend to be more limited in scope and therefore the overall costs on an annual basis can be less than field practices.

Capital Funding	\$	3,862,500
Non-Capital Funding	\$	1,537,500
Total	\$	5,400,000

5. “What agency has overarching clean water planning and implementation responsibility— that is, the responsibility to ensure that regardless of operating area (e.g. VTRANS, ANR, AAFM, BGS, ACCD, etc.), the state’s clean water laws are being following and appropriate planning and programs are in place?”

While agriculture in Vermont is currently responsible for 41% of the total loading of phosphorus to Lake Champlain, it represents at least 60% of the total phosphorus reduction which will be made over the 20-year implementation of the EPA TMDL for P for the Lake Champlain Basin in Vermont. When taking into account the fact that farmers further manage forestland as well as much of the streamside cropland which further compounds the opportunity which exists to achieve reductions through the very engaged group of citizens in Vermont who continue to step up to the plate, engage, and make changes on their farm operations – agriculture will be responsible and will produce the lion’s share of the reduction of Phosphorus and contribute to clean water throughout Vermont.

The figure below (VT LCB P Loads, 2001-2010 Comparison) is instrumental for understanding just how essential Vermont farmers are to achieving reductions on a reasonable timeline and with the most cost-effective results for public investment. Over 75 owners, operators and employees of custom manure applicator outfits throughout the state came out in the first year of the program, engaged, and became certified – a true testament to their engagement. Real consideration and thought was demonstrated by these applicators of essential nutrients on the Vermont landscape throughout the first year of implementation of the program and it speaks to the positive impact implementation of Act 64 of 2015 is having on agriculture already in Vermont.

Over 250 small farms have submitted their Small Farm Certification forms and have already complied with the new program requirements of the RAPs ahead of the deadline. Farmers engaged with our new CEAP program and requested over \$4.5 million in financial assistance for \$1 million in available funding to support them in implementing innovate

equipment which will achieve significant and persistent reductions in non-point source loss from their farming operations. Over 20 farms reached out to the Agency to share information about their floodplain fields and request alternative management accommodations for their cropland in just the first year of implementation of the rule, demonstrating significant compliance by farms and effective outreach by the Agency to ensure farmers are aware of the rule and able to engage in field-specific planning.

Just as VAAFMM has laid out our significant success, achievement and milestones in the second year of implementing Act 64 of 2015, farmers must be recognized for not only the contributions they will make in achieving the TMDL for Lake Champlain but also for the many ways they already have, and will continue to, engage with the Agency and partners, plan new practices and implement management changes to achieve water quality on their farms.

However, despite all of the accelerated programming and resources, we as an Agency have to do more. From continued implementation of BMPs that are farm size and type appropriate to thinking outside the box to create new approaches to reduce phosphorus. Moving on policies that create new markets to export phosphorus and setting up incentives for farms to achieve increasingly better whole farm phosphorus balances are examples of the direction the next generation of water quality investments is taking.

Agriculture in Vermont has a prime opportunity, with significant resources - both financial and staff capacity - prepared and engaged to work with partners and farmers to identify new prospects for change. Examples include making wise investments in farm relocation or transformation when the costs of water quality is greater than a farm's grand list value, or looking at whole farm nutrient balances through the nutrient management standard.

Farmers are stepping up because they, too, are passionate about the land, water, animals and communities. They are passionate about the jobs that they provide, and committed to making the best, award winning products from Vermont. Passion extends to many others as well - The Agency of Agriculture is working closely with partners such as DEC, University of Vermont Extension, U.S. Department of Agriculture, Lake Champlain Basin Program and many more. Certainly, there is much more work to do. But by working together with investment, education, enforcement and assistance, Vermont is on an upward trajectory, aiming high for quality in land, water, and agriculture. We are all committed to a greener Green Mountain State, and unified, we will get there.

Vermont Lake Champlain Base Phosphorus Loads, 2001-2010, compared to Vermont Lake Champlain TMDL loading capacity and allocations, by sector, in MT/yr

Sources: Data for base loads are from TetraTech, 2015

