Conservation Innovation Grant Project Abstract FY 2020

Project Title: **Linking Farm Phosphorus Reduction Planner (FarmPREP) to Total Maximum Daily Load (TMDL) Modeling and Phosphorus Reduction Valuation Analysis**
Applicant: Vermont Agency of Agriculture, Food and Markets (VAAFM)
Duration of Project: 18 months
Amount of Federal Funding Requested: $250,000
Amount of Non-Federal Match Committed: $250,000
Geographic Location: Statewide

Brief Project Description: In 2016, the Environmental Protection Agency reestablished a Phosphorus Total Maximum Daily Load (TMDL) for the Lake Champlain Basin (LCB), which includes specific reductions on agricultural land ranging from 20.0% to 82.8% per lake segment. Efforts addressing agricultural nonpoint source pollution are essential to achieving these reductions.

The Farm Phosphorus Reduction Planner (FarmPREP) is an integrated web-based application developed and maintained by Stone Environmental that aims to help farmers and stakeholders evaluate the impacts of field-level best management practices on farm-scale phosphorus loading reductions and identify modifications to their field operations to help achieve water quality improvement targets.[1] This project proposes to leverage the work that has gone into FarmPREP and to further develop this tool, pilot it across several farms, and evaluate the results as a potential basis for a pay-for performance-based system in Vermont that would pay farmers for modeled phosphorus reductions from the LCB TMDL Base Load. This project will focus on cropland and hayland, which are the focus of the FarmPREP tool.

This project would incorporate three major areas of work:
(1) Modify FarmPREP to model phosphorus reductions from a modeled TMDL Base Load.
The TMDL generated base phosphorus loading estimates from a series of crop management assumptions. We propose to modify FarmPREP to use these assumptions as its baseline.
(2) Recruit 10-12 farms statewide of diverse sizes and types to work with VAAFM staff members to input their land management data into FarmPREP and then run the FarmPREP model on those farms.
We are currently working with a variety of farmers on data entry through the Vermont Environmental Stewardship Program (VESP) and will particularly encourage those farmers to work with us on this project.
(3) Evaluate the opportunity for payments for phosphorus reductions from the TMDL Base Load.
We will use the data collected from FarmPREP to answer pressing questions that will inform the development of a potential pay-for-performance program that will pay farmers for phosphorus reductions beyond the TMDL Base Load.

State Priority Being Addressed: Water Quality, Soil Health