# Payment for Ecosystem Services & Soil Health Working Group

## Rough Outline for the 2023 Report to the Legislature

Prepared by CBI – November 16, 2022

1. **Executive summary**
2. **Introduction**
	1. Outline of what’s in the report
3. **Overview of WG process**
	1. Background (letter from farmer watershed groups)
	2. Legislative charges
		1. [Act 83 of 2019](https://legislature.vermont.gov/Documents/2020/Docs/ACTS/ACT083/ACT083%20As%20Enacted.pdf) established the “Soil Conservation Practice & Payment for Ecosystem Services Working Group”
		2. Working Group reported to the Legislature on [January 15, 2020](https://legislature.vermont.gov/assets/Legislative-Reports/Soil-Conservation-Practice-and-PES-Working-Group-Report-01152020.pdf)
		3. [Act 129 of 2020](https://legislature.vermont.gov/Documents/2020/Docs/ACTS/ACT129/ACT129%20As%20Enacted.pdf) amended Act 83 of 2019 to rename the title of the PES Working Group to "Payment for Ecosystem Services and Soil Health Working Group," to establish this Working Group until January 2022, to direct the inclusion of specific additional seats, and to lay out new charges
		4. [Act 47 of 2021](https://legislature.vermont.gov/Documents/2022/Docs/ACTS/ACT047/ACT047%20As%20Enacted.pdf) extended the Working Group’s charge until 2023
		5. Working Group submitted an interim report to the Legislature on [February 1, 2023](https://agriculture.vermont.gov/sites/agriculture/files/documents/Water_Quality/PES/PES-Working-Group-Interim-Update-02012022.pdf)
		6. [Act 185 of 2022](https://legislature.vermont.gov/Documents/2022/Docs/ACTS/ACT185/ACT185%20As%20Enacted.pdf) (FY 2023 budget) appropriated $1 million to VAAFM “… to enable Payment for Ecosystem Services Program development to retain facilitation services, contract identified research needs, fund pilot program development, and deliver payments to farmers for quantified ecosystem services.”
	3. WG process
		1. Describe what ES and PES are (draw from 2020 report to the Legislature)
		2. note that PES is a complicated and limited concept
		3. examples of programs (UVM Research Report 6 for survey of PES programs, reference
		4. pay for performance, focus on outcomes is difficult, and measuring/monitoring change is difficult
	4. Overview of work/meetings since 2021 (see appendix: table of meetings and agenda topics)

*Responses to Act 129 of 2020 legislative charges*

1. **(1) a recommended payment for ecosystem services approach;**
	1. Recommended Approach
		1. CSP w/ Vermont State Enhancement pilot approach (from pilot subtask group)
	2. Other Approaches considered
		1. 5 other examples from summer work, brief descriptions (appendix with a description of each and evaluation matrix)
		2. Note UVM Research Report 6b had considerations for farmer-developed proposals, which may be fruitful for consideration in the future/elsewhere (CSP+, Observed Metrics, VT HSP&R Act)
2. **(2) a recommended definition of healthy soils, a recommended method or systems for measuring soil health and other indicators of ecosystem health, and a recommended tool for modeling and monitoring soil health;**
	1. recommended definition of healthy soils –
		1. Note definition in 6 VSA § 4802 (4) - "Healthy soil" means soil that has a well-developed, porous structure, is chemically balanced, supports diverse microbial communities, and has abundant organic matter
		2. In 2021, the working group identified the following indicators of soil health - organic matter, aggregate stability, bulk density, greenhouse gas (N2O and CO2) emissions, and soil biodiversity
	2. a recommended method or systems for measuring soil health and other indicators of ecosystem health
		1. UVM Research Report #1 conclusion gets at this – a Vermont soil health index, CASH test or other lab-based test (though none currently capture all the indicators of interest to the WG)
		2. UVM Research Report #2 illustrated how changes in management on Vermont farms can influence soil health at the field scale (potentially include summary table)
	3. recommended tool for modeling and monitoring soil health
		1. UVM Research Report #1 suggests creating or modifying a model to capture all the indicators of interest to the WG (see conclusion)
3. **(3) a recommended price, supported by evidence or other justification, for a unit of soil health or other unit of ecosystem service or benefit provided;**
	1. General discussion of willingness to pay, willingness to accept, and social costs (to set the stage for conclusions below)
	2. UVM Research Report #7 found that ambitious (‘best’) improvements in soil health on Vermont farms could yield $34/acre/year in several ecosystem services combined. ‘Good’ improvements could yield $17/acre/year. (Report also gives breakdowns for C storage, flood mitigation, erosion reduction, and P retention).
	3. UVM Research Report #3c found that average preferred & minimum per acre payment rates required by farmers for *maintaining* soil health were $186 & $40 respectively. Preferred & minimum rates for *enhancing* soil health were $843 & $269 respectively. (Table 3 on page 8 contains further breakdowns based on acreage.)
	4. UVM Research Report #3 found that the median rate was $100/acre and the mean was $206/acre.
	5. (Note that the Working Group’s payment rates for the pilot are determined by the funds appropriated, rather than a strict market price.)
	6. (Ultimately note that actual prices paid can be evidence-based but require judgments and value considerations that go beyond calculations and methodologies, all with assumptions and imperfections.)
4. **(4) proposed eligibility criteria for persons participating in the program;**
	1. In its Program Objectives, Elements, and Assumptions, the Working Group agreed that all farmers should be eligible to participate if they are compliant with the RAPs. However, only those farmers who meet the standards set by the program will receive payments.
	2. (NRCS ranks applicants for CSP once applications reach funding levels, but this historically has not been the case in Vermont.)
5. **(5) proposed methods for incorporating the recommended payment for ecosystem services approach into existing research and funding programs;**
	1. The proposed approach will build on an existing set of federal & state programs (CSP and VESP)
	2. AgCWIP could provide grant opportunities for farmers or others to look into metrics related to water quality and ecosystem services
	3. Similar opportunities through Vermont Water Quality Partnership
	4. Pilot could lead to development of an RCPP application
	5. Need for support for navigation role for managing the variety of existing state and federal funding programs
		1. Governor’s Future of Agriculture Commission’s 2021 [Action Plan](https://agriculture.vermont.gov/document/future-agriculture-commission-action-plan-release-february-7-2022) recommended creating a full-time permitting, regulation, and funding “navigator” position at VAAFM (see [page 9](https://agriculture.vermont.gov/sites/agriculture/files/doc_library/Future%20of%20Vermont%20Agriculture%20Commission%20Report%20Release%20Date%2002.07.2022.pdf) of that plan)
		2. Idea to create an online portal for farmers to access information about funding programs all in one place
		3. Idea to use farm teams to provide TA & shared learning opportunities to multiple farmers.
6. **(6) an estimate of the potential future benefits of the recommended payment for ecosystem services approach, including the projected duration of the program;**
	1. Note the many benefits of the recommended approach and as laid out by the group (support to farmers, improvements in soil health, improvements in water quality, carbon storage, etc.)
	2. Information for tracking of state’s water quality efforts
	3. Potential to leverage incoming federal funds (IRA)
	4. Pilot (indirectly) incentivizes ecosystem services identified by WG
	5. (Others from pilot design subtask group)
7. **(7) an estimate of the cost to the State to administer the recommended payment for ecosystem services approach; and**
	1. (From pilot design subtask group)
8. **(8) proposed funding or sources of funds to implement and operate the recommended payment for ecosystem services approach.**
	1. For pilot – FY 2022 budget funding + NRCS resources
	2. For future program - Future RCCP payment, state contribution
	3. More will be known as needed state contribution for a future program after pilot implementation
9. **Other important considerations**
	1. Need for more work on biodiversity
		1. Biodiversity matrix shared by Becky & Maddie as of interest to the WG
		2. Need for more peer-reviewed research on metrics, particularly translating qualitative observation into quantitative metrics
	2. How do we encourage farmers to participate?
		1. Ways to empower farmer watershed groups to participate and drive program innovation
		2. Grants for pilots on observed metrics
10. **Appendices**
	1. List of WG members
	2. Table of meetings, dates, and agenda topics
	3. June 2022 WG program design objectives document
	4. CSP w/ VSE pilot design materials