

NEW YORK STATE
DEPARTMENT OF AGRICULTURE AND MARKETS
AND SOIL AND WATER CONSERVATION COMMITTEE

RFP0202 - REQUEST FOR PROPOSALS

**Climate Resilient Farming
Round 4**

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I. GENERAL PROGRAM INFORMATION

1. Introduction

The New York State Soil and Water Conservation Committee (State Committee) invites Soil and Water Conservation Districts to submit proposals for funding to the Climate Resilient Farming Program. Program funds are available for projects that mitigate the impact of agriculture on climate change and enhance the on-farm adaptation and resiliency to projected climate conditions. Applications must be for **ONE** of the following:

- **Track 1:** Agricultural waste storage cover and flare systems
- **Track 2:** Water management
- **Track 3:** Systems that enhance soil health

Project proposals must have originated through the Agricultural Environmental Management (AEM) framework. Cost share funds will be provided through Soil and Water Conservation Districts for the implementation of Best Management Practices (BMPs) Systems. Availability of funding for this program is from the State Fiscal Year 2018-2019 Environmental Protection Fund Budget which includes an appropriation for this purpose.

2. Proposal Submission Requirements

Proposals for funding under the Climate Resilient Farming Grants Program must conform to the format provided. **PROPOSALS MUST BE SUBMITTED via SharePoint by 4:30 pm local time on 5/13/19 to be considered for funding.** Applicants, and not computers or servers, are responsible for the timely submission of proposals. Proposals received after the scheduled date and time will not be accepted. Faxed, mailed, or e-mailed proposals will not be accepted.

3. Questions and Answers

Prospective applicants with questions concerning this RFP should present those questions to:

Brian Steinmuller
NYS Soil and Water Conservation Committee
10 B Airline Drive
Albany, NY 12235
(518) 457-0562
Brian.steinmuller@agriculture.ny.gov

All questions must be submitted to Brian Steinmuller in writing by 4/29/19. Applicants should note that all clarifications are to be resolved prior to the submission of a proposal. A list of questions about the RFP, answers to those questions, and any addenda to the RFP, will be added to the Questions and Answers document posted on the Department website and the State Committee's SharePoint site along with the electronic version of this RFP and other program attachments. A complete questions and responses document will be posted no later than 5/6/19. All questions and answers shall be incorporated into the RFP as a formal addendum.

Proposal Timeline

RFP Release:	3/6/19
Questions Submittal Due Date:	4/29/19
Questions and Answers Final Posting:	5/6/19
Proposal Due Date:	5/13/19

4. Background and Goal of the Program

The goal of the Climate Resilient Farming Program is to reduce the impact of agriculture on climate change (mitigation) and to increase the resiliency of New York State farms in the face of a changing climate (adaptation).

Mitigation

Estimates of annual greenhouse gas emissions from agriculture (apart from agricultural energy use, which is classified differently) in New York State range from 5.3 to 5.4 million metric tons of carbon dioxide equivalent¹. Manure management is responsible for roughly 15% of the emissions; emissions from soils are slightly under a third of the total. This represents a major opportunity to reduce emissions. Transitioning from open liquid manure storage systems to manure storage systems with covers and flares would allow methane (CH₄), a gas with 34 times the global warming footprint² of carbon dioxide (CO₂), to be captured and destroyed. Soil health practices can sequester carbon from the atmosphere as soil organic matter and allow for more efficient use of nitrogen by crops, thereby reducing nitrous oxide (N₂O) emissions from soils (N₂O has 298 times the global warming potential of CO₂).

Adaptation

Climate projections for New York State include increased summer and winter temperatures, increased overall precipitation, increased intense precipitation events, and more instances of short duration summer droughts. New York farms will likely face more frequent dry periods in the summer as well as more frequent and severe flood events—possibly in the same season. Manure storage covers, enhanced water management systems, and soil health efforts all have the potential to reduce the worst impacts of climate change on farms. This program intends to capitalize on the opportunities to mitigate agriculture’s greenhouse gas emissions while strengthening the resiliency of New York State’s farms.

Preference will be given to projects that can demonstrate strong potential both in mitigation and adaptation.

5. Funding

A. Funding Source

The New York State Department of Agriculture and Markets and the New York State Soil and Water Conservation Committee are pleased to announce the availability of funds to support climate change mitigation and adaptation/resiliency in farms across New York State. The funding comes from the Environmental Protection Fund (EPF), within in the newly established “Climate Change Mitigation and Adaptation” account.

B. Available Funding

All projects will be ranked. Funding will be assigned by track:

Track	Funding Available	Cost Share/Match
Track 1: Agricultural waste storage cover and flare systems	\$1,000,000	Up to 75% total eligible costs
Track 2: Water management systems	\$790,000	Up to 75% total eligible costs
Track 3: Systems that enhance soil health	\$510,000	Up to 75% total eligible costs
Total Available Funding	\$2,300,000	

¹ NYSERDA report, “New York State Greenhouse Gas Inventory and Forecast: Inventory 1990 – 2011 and forecast 2012 – 2030” 2014 update

² IPCC report *Climate Change 2013 Update—Physical Science Basis*, Chapter 8 “Anthropogenic and Natural Radiative Forcing,” Breon et. al http://www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf

C. Reallocation of Funds

Within each track, available funds are to be awarded to eligible projects in rank order. Any remaining funds will be offered as partial funding to eligible projects in ranked order. If funds remain after this process is completed, the leftover funds will be pooled and redistributed to the other track(s) based on the original allocations as illustrated with the following example:

If funds remain for Track 1, the leftover funds would be allocated toward the ranked lists for Track 2 and Track 3 according to the following method:

- Track 2 Re-Allocation Percentage (to the nearest hundredths place) = $\frac{\text{Original Track 2 Percentage}}{(\text{Original Track 2 Percentage} + \text{Original Track 3 Percentage})}$
- Track 3 Re-Allocation Percentage (to the nearest hundredths place) = $\frac{\text{Original Track 3 Percentage}}{(\text{Original Track 2 Percentage} + \text{Original Track 3 Percentage})}$
- If all eligible projects are then funded within a track such that only one track remains, the leftover funds would be re-allocated to the remaining track.

6. Match Requirements

The state may fund up to 75 percent of the total eligible costs of total project costs. Landowner or operator contributions used as match may be in the form of cash or in kind value for the services provided by the landowner or operator. This cash value of services must be reasonable, and is subject to adjustment by the Committee. The state funded contribution in dollars or percentages cannot increase as a result of budget changes or variations. Project Sponsor match, if applicable, may be in the form of in-kind services and/or cash (non-state funds).

Funds from the Climate Resilient Farming Program will be provided contingent upon the sponsor obtaining necessary funds to provide the required match. A written commitment for other required funds or resources must be provided before the funding allocations will be finalized. Sponsor and landowner contributions and expenditures that were made or incurred prior to the contract start date or after contract completion, as designated by the Department of Agriculture and Markets, are not eligible as matching funds or for state reimbursement.

Note for Track 1—Agricultural waste storage cover and flare systems: Manure liquid/solid separation may be cost-shared by state funds if needed to complete the agricultural waste storage cover and flare system. CNMP development costs may be utilized as landowner or operator match when applying for funding under Track 1. Updates to an existing CNMP for the purpose of implementing the agricultural waste storage cover and flare system may also be utilized as landowner or operator match. See Appendix A/Guidance Document 1 for more information.

II. ELIGIBILITY

1. Applicant Eligibility

Proposals for funding will be accepted from Soil and Water Conservation Districts. Proposals may be for multiple projects and/or on multiple farms, but must be for one track only. Districts may submit more than one application, including separate applications for multiple tracks on the same farm.

Note: Some tracks have overlapping eligible systems. Applicants must choose the most appropriate track for their proposal.

2. Project Eligibility

The goals of the program are to reduce NYS agriculture's impact on climate change through greenhouse gas emissions reduction and carbon sequestration, and to reduce climate change's impact on NYS agriculture by

increasing on-farm resiliency in the face of climate change impacts to the region, including increased heavy storm events, overall rainfall, and periods of drought. Strong proposals will show opportunities both in terms of mitigation and adaptation/resiliency.

All applications must be for one of the following tracks:

- Track 1: Agricultural waste storage cover and flare systems
- Track 2: Water management systems
- Track 3: Soil health systems

Track 1: Agricultural waste storage cover and flare systems

The following practice systems from the Agricultural Best Management Practice Systems Catalogue are eligible for cost share for Track 1:

- Waste Storage and Transfer System
- Manure and Agricultural Waste Treatment System
- Nutrient Management System – Cultural

Track 2: Water management systems

The following practice systems from the Agricultural Best Management Practice Systems Catalogue are eligible for cost share for Track 2:

- Riparian Buffer System
- Stream Corridor and Shoreline Management System
- Erosion Control System – Structural
- Irrigation Water Management System
- Access Control System
- Prescribed Rotational Grazing System

Practice components from the Green Infrastructure chapter of the New York State Stormwater Management Design Manual may also be used to fulfill Track 2 goals.

Track 3: Systems that enhance soil health

The following practice systems from the Agricultural Best Management Practice Systems Catalogue are eligible for cost share for Track 3:

- Soil Conservation System - Cultural (Note: cover crop practices will be awarded on a per acre basis for a three year term)
- Erosion Control System – Structural
- Prescribed Rotational Grazing System
- Riparian Buffer System

See Appendices A, B, and C (Guidance Documents 1, 2, and 3) for more information about eligible practice systems and components.

III. PROJECT COSTS

1. Eligible Expenses:

- architectural and/or engineering services
- consultant and legal services
- other direct expenses (e.g. funding for cultural resource impact determinations for ground disturbing BMPs).

State assistance payments may not be used to cover the lease or purchase of equipment not directly related to the function of the BMP. If the equipment is directly related to the function of the BMP state assistance

payments can be used. Equipment costs may also be an eligible match contribution. It is advisable for applicants to request clarification on the eligibility of specific equipment during the open questions and answers period and all determinations will be added to the Questions and Answers document.

Certain BMPs and/or BMP components are eligible for per acre reimbursement rates. Please see Guidance Document 3 for a detailed list. Any questions or requests for clarification should be asked during the question and answer period, and all determinations will be added to the Questions and Answers document. BMPs to be implemented on rented property should not be submitted for funding unless there is a written lease for the use of the property for the life span of the BMP.

All costs associated with the operation and maintenance of BMPs will be the sole responsibility of the landowner and/or operator and cannot be used as a match to State funding. The project sponsor must require that the landowner and/or operator maintain the practice during its expected life span.

2. Hourly Rate Recommendations:

The following rates were derived from an inquiry of hourly rates for each of the listed positions from SWCDs as part of the 2017 annual reports submitted. Districts may use the hourly rates to calculate total personnel services costs.

	Hourly Rate	Overhead	Total
Managerial	\$ 56.00	\$ 5.00	\$ 58.00
Technical	\$ 35.00	\$ 5.00	\$ 40.00
Senior Technical*	\$ 44.00	\$ 5.00	\$ 49.00
Secretarial	\$ 36.00	\$ 5.00	\$ 41.00
NRCS Area Engineer	\$ 70.00	\$ 5.00	\$ 75.00

*10 years or more of experience

Districts may use their actual salary, benefit, and overhead figures in lieu of the above set rates. In those cases, full documentation must be provided to obtain payment. In cases where interns, seasonal, or part-time employees are used, actual hourly rates will have to be used and justified. These rates, including overhead expenses, can also be used for local agency personnel (NRCS, CCE) as well as private sector consultants. These individuals will also have the option to use and fully justify their own actual rates. Overhead expenses cannot be used for actual rates.

The budget form provides a column for the \$5 per hour overhead figures—it cannot be paid with State funds but needs to be shown in the Sponsor column under Engineering and Overhead Expenses (SW-4). Districts using actual rates may not charge for overhead.

IV. PROPOSAL FORMAT

1. Application and submittal:

The application will be made available through the Department website and the State Committee SharePoint site. To be considered complete at the time of the application deadline, the entire application packet must consist of:

- Application pdf form with the proposal checklist
- SW Excel forms (see details below)
- Board Resolution supporting the application
- Additional/supporting materials (optional)

NOTE: The applications are time stamped by SharePoint! **Do NOT delete or re-upload documents following the grant deadline.** To submit the application, please open your District’s folder within the SharePoint District Upload Folder. Open (or, if necessary, create) a “Climate Resilient Farming” subfolder and create subfolders for each application you will be submitting. All application materials should be named with the District name and application number. Any questions regarding the SharePoint system should be directed to the SharePoint administrator or CRF Program Manager.

All applicants must also submit Forms SW-1, SW-2, SW-3, and SW-4. The sheets are protected and will not allow changes to formulas—contact the Program Manager if something needs to be changed. This should reduce administrative time both for the applicant and for the state by streamlining the process and reducing the risk of errors. There will also be the opportunity for applicants to upload supporting documents such as floodplain maps, documentation of past or current storm damage, Emergency Management Plans, etc.

2. Budget:

The SW forms will provide the budget and implementation details of each application. The SW forms must be completed and submitted for each proposal submitted. These forms should indicate State assistance payments requested by expenditure category, as well as the amount, type (cash or in-kind) and source (SWCD, landowner, EQIP) of the Project Sponsor's and landowner’s matching contribution. Please refer to the "Match Requirements" section of this RFP for additional information, and please make sure that the amounts specified in the RFP application pdf form match the SW forms exactly.

The proposed budget may include a “Contingency Account” of up to 10 percent **of BMP expenditures** to cover cost overruns, **unless funding is requested with an approved rate per acre payment.** This will require a sponsor and/or landowner contribution that is the same as the match percentages of the BMP(s). Contingency funds may be used only with prior approval by the Director of the Division of Land and Water Resources, the Assistant Director, or the appropriate regional Associate Environmental Analyst. Please indicate whether the sponsor and/or landowner contribution match will be cash or in-kind.

V. PROJECT EVALUATION AND SCORING OVERVIEW

Funding will be evaluated and ranked by track. Funds will be allotted separately to each track as detailed in the “Available Funding” section (I-5). Each proposal will be ranked based on the following criteria (refer to the Proposal Ranking Sheet and Appendices/Guidance Documents for more information):

Criterion	Description	Points
Mitigation	Project clearly demonstrates capacity to decrease GHG emissions. GHG emission reductions are estimated and/or described in detail.	16
Adaptation/ Resiliency	Project clearly demonstrates opportunity to increase farm resiliency to changing climate impacts. Proposal addresses risks due to climate change (increased flooding, more frequent short droughts, more severe storms, and overall increased precipitation) and proposes methods of reducing their negative impact on the farm operation and local environment.	16
Scope of Work and Timeframe	The feasibility of the project is clearly demonstrated. Proposal clearly defines what is to be done, how it will be done, who will do it, and when it will be done.	8
Cost effectiveness	The project is cost effective relative to greenhouse gas mitigation and/or adaptation benefits. The cost share rate is competitive.	10
TOTAL		50

VI. PROPOSALS SELECTED FOR FUNDING

1. Award Notification

Sponsors whose proposals are selected for funding will be notified as soon as possible. Selected proposals must comply with all applicable Federal, State, and local laws and rules and regulations for funding to be awarded. Evidence of such compliance may be required.

2. Review by the NYS Office of Parks, Recreation and Historic Preservation (OPRHP)

Proposals which are selected for funding may be subject to further review by the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) prior to development of a contract. The State Committee reserves the right to request such additional information from sponsors as is necessary to allow the OPRHP to decide regarding the impact of a project.

3. Contracts

Once an application has been selected for funding, the State Committee will notify the sponsor of the need to provide information necessary to complete the contract. Payments cannot be made until the contract is fully executed. The Department reserves the right to withhold a minimum of 10 percent of the State assistance payment pending satisfactory completion of the contract.

If the State Committee and the Department are unsuccessful in negotiating a contract which will achieve the deliverables in a manner consistent with the proposal as approved by the State Committee, the Climate Resilient Farming RFP, and any applicable laws or regulations, the Committee reserves the right to rescind its approval of the proposal for funding and instead award the funding to other eligible unfunded project proposals.

Any awards for projects under \$10,000 may be subject to a Letter of Agreement rather than a full contract process, subject to the discretion of the State Committee.

Letters of commitment from the project sponsor (including the District board), all landowners/operators, employers of all personnel, and other entities providing monetary or technical assistance must be submitted. The standard term for projects will be three full construction seasons plus three months for project administration and completion of the final report. The earliest contract start date will be 7/1/19 and the latest end date would be 12/31/22. These dates may be subject to change. The project sponsor may request a different term, if necessary.

4. Payment

Payment for invoices submitted by the Project Sponsor/Contractor shall only be rendered electronically unless payment by paper check is expressly authorized by the Commissioner, in the Commissioner's sole discretion, due to extenuating circumstances. Such electronic payment shall be made in accordance with ordinary State procedures and practices. The Project Sponsor/Contractor shall comply with the Comptroller of the State of New York's procedures to authorize electronic payments. The Contractor acknowledges that it will not receive payment on any invoices submitted under this Agreement if it does not comply with the Comptroller of the State of New York's electronic payment procedures, except where the Commissioner has expressly authorized payment by paper check as set forth above.

5. Reporting

State Committee staff will monitor the progress of each funded project.

The State Committee reserves the right to modify the reporting requirements during the course of the project. At a minimum, progress reports will be required two (2) times per year as specified by the State Committee. In addition, an original and one copy of a comprehensive final report will be required within sixty (60) days following completion of the project. For all projects, the final report shall include a final budget report

detailing expenditures; a Climate Resilient Farming Project Completion Report (reviewed and signed by SWCC staff); a description of the work completed and problems encountered, if any, and such other information as the State Committee may deem necessary.

The Climate Resilient Farming Project Completion Report will also include photographs of the work site before and after construction, BMP Procurement Records, Farm Expenditure Summary, Consultant Engineer's Certification of BMPs (if needed) and details of the operation of the funded systems regarding greenhouse gas mitigation and climate adaptation as specified in the application.

The State Committee reserves the right to conduct a follow-up evaluation of funded projects to determine long-term impacts.

The Department and Comptroller's Office reserves the right to audit the Project Sponsor's books and records relating to the performance of the project during and up to six (6) years after the completion of the project.

6. Liability

The State will not be held liable for any costs incurred by any District for work performed in the preparation of and production of a proposal, or for any work performed prior to the formal execution of a contract.

7. Freedom of Information

All proposals submitted and all related contracts and reports may be subject to disclosure under the Freedom of Information Law.

8. NYS Master Contract

New York State has developed a standard "Master Contract" containing standard clauses required in all State Contracts. The Master Contract will be executed for all projects awarded under the Climate Resilient Farming Grant Program, and applicants are responsible for complying with the terms and conditions contained therein.

VII. OTHER CONSIDERATIONS

The State Committee reserves the right to:

- Reject any or all proposals received in response to this RFP.
- Withdraw the RFP at any time, at the State Committee's sole discretion.
- Make an award under the RFP in whole or part.
- Award more than one funding agreement to the same successful applicant resulting from this RFP.
- Disqualify any applicant whose conduct and/or proposal fails to conform to the requirements of the RFP.
- Seek clarifications and revisions of proposals.
- Annually amend the RFP specifications to correct errors or oversights, or to supply additional information, as it becomes available and with appropriate written notice to all potential applicants by posting amendments on the [Department website](#).
- Direct applicants to submit proposal modifications addressing subsequent RFP amendments.
- Change any of the scheduled dates.
- Waive any requirements that are not material.
- Waive or modify minor irregularities in proposals received after prior notification to the applicant.
- Require clarification at any time during the grant process and/or require correction of arithmetic or other apparent errors for the purpose of assuring a full and complete understanding of an applicant's proposal and/or to determine an applicant's compliance with the requirements of the RFP.
- Negotiate with successful applicants any matter within the scope of the RFP in the best interests of the State.

- Eliminate any mandatory, non-material specifications with which all applicants cannot comply.
- Make all final decisions with respect to the amount of State funding and the timing of payments to be provided to an applicant.

All eligible proposals submitted in response to this RFP will become the property of the New York State Soil and Water Conservation Committee

Appendix A: Track 1 Guidance Document

Goal of the Program:

The goals of the Climate Resilient Farming Program are to reduce the impact of agriculture on climate change and to increase the adaptability and resiliency of New York State farms in the face of a changing climate.

Why covers and flares?

Agricultural waste storage cover and flare systems have the capacity to immediately impact both the greenhouse gas emissions from the farm and the farm's resiliency to major precipitation events.

What are cover and flare systems and what components to they require?

Cover and flare systems involve installing an impermeable cover over a manure storage facility, piping the emitted methane and other gases away from the facility, and burning the gas in a flare (see next page for BMP system components). A manure solids separator is a critical component of the covered and flared manure storage to reduce solids accumulation in the storage (eligible for state cost-share if proposed as a required component of the agricultural waste storage cover and flare system).

Cover and Flare Systems and Climate Change

The goals of the Climate Resilient Farming Program include both reducing the greenhouse gas footprint of farms (mitigation) and enhancing farm resiliency, given the reality of climate change (adaptation). Projects that have strong potential in both areas are most likely to be funded.

Greenhouse Gas Mitigation

Agricultural waste storage covers capture the methane emitted from the waste, and the flare component converts the methane (CH₄) into carbon dioxide (CO₂). Since CH₄ has 34 times the global warming potential of CO₂, this conversion results in significant greenhouse gas emission savings, as equated in CO₂ equivalents (CO₂ eq). The annual amount of CO₂ eq saved through the process depends on the volume of the storage, number and type of animals the storage services, shape of the storage, and feed management.

However, GHG emission reductions may be estimated. The following method (IPCC 2006) is for dairies:

$$\begin{aligned} \text{Methane emissions per cow, annually} &= VS \times B_0 \times 0.67 \times (MCF/100) \times 365 \\ \rightarrow &= 175 \text{ kg CH}_4/\text{cow annually, on average}^1 \rightarrow 5950 \text{ kg CO}_2 \text{ eq/cow annually} \end{aligned}$$

In addition to the emissions reduction, preventing rainwater from entering the storage eliminates the need to pump or haul rainwater leading to energy reductions. It also increases the nitrogen available to crops from manure by 30-50% (Steinberg, et al., 2015) by eliminating rainwater dilution and NH₃ emissions.

Track 1 projects will be judged on mitigation based on the size of the storages, animal numbers, flare capacity, commitment to tracking/testing the system, and the farm's commitment to GHG emission reductions overall.

Adaptation

Climate change predictions for New York State include increased overall precipitation as well as more severe and more common storm/flooding events. The cover component of the cover and flare system prevents rainwater from entering the storage, reducing the volume of manure to be stored by 300,000-700,000 gallons/year per acre of storage covered (Shepherd et al., 2008). Those gallons of rainwater will remain clean water not mixed or contaminated with manure, preventing potential pollution, and the manure storage is significantly less likely to overtop in a storm or as the result of a wet season.

¹ Where VS = total volatile solids in manure (kg/cow/day) = 7.7 kg/cow/day average for NY cows
B₀ = Maximum CH₄ producing capacity for manure = 0.24 m³ CH₄/kg VS (for dairy cow manure)
MCF = CH₄ conversion factor for the manure management system (%) = 17% NY winter, 35% NY summer

Eligible Practice Systems (from the Ag BMP Catalogue) for Track 1 include Waste Storage and Transfer System, Manure and Agricultural Waste Treatment System, and Nutrient Management System – Cultural

Note: Practice systems described are guidelines, not an exclusive list. If, however, an applicant chooses systems or components not identified below, consider including more explanation in the narrative section.

All applications must be for systems, not discrete components.

Waste Storage and Transfer System, Manure and Agricultural Waste Treatment System, and Nutrient Management System – Cultural all have BMPs in common. The goal with regard to this RFP is to retrofit an existing agricultural waste storage facility with an impermeable cover and flare system. Eligible BMPs include:

- Roofs and Covers (NRCS 367)
- Waste Transfer (NRCS 634)
- Pumping Plant (NRCS 533)
- Waste Treatment (NRCS 629; includes the flare component)
- Waste Separation Facility (NRCS 632)

BMPs eligible for in-kind match include:

- Nutrient Management (NRCS 590; for plan updates)
- For water conveyance off the cover:
 - Pond (NRCS 378)
 - Critical Area Planting (NRCS 342)
 - Grass Waterway (NRCS 412)
 - Lined Waterway or Outlet (NRCS 468)

Compliance with NYS DEC air quality codes, rules, and regulations.

- The farmer owner/operator of the methane destruction flare component of manure storage cover and flare systems is responsible for compliance with the applicable codes, rules, and regulations of 6 NYCRR Subchapter IIIA for air resources. Any required registrations or permits must be in place before construction and operation of the flare. NYS DEC Division of Air Resources staff are available in each region to help with the application as well as formally review and process the application. [Regional contacts are available here.](#)

Intergovernmental Panel on Climate Change, 2006. Guidelines for National GHG Inventories, Volume 4, Chapter 10, Tier 2 method.

Shepherd, T., C.A. Gooch, K.J. Czymmek, J. Karszes. 2008. Covers for Long-Term Dairy Manure Storages

Part 2: Estimating Your Farm's Annual Cost and Benefit. Available at www.manuremanagement.cornell.edu/Pages/General_Docs/Fact_Sheets/Manure_storage_covers_part_2_factsheet.doc.pdf (verified 17 July 2015).

Steinberg, S, C.A. Gooch, K.J. Czymmek. 2015. Covered manure storage systems: Tangible and non-tangible benefits. The Manager (2015-01). Available at <http://ecommons.cornell.edu/bitstream/handle/1813/39052/PRO-DAIRY%201.15%20p23.pdf?sequence=2&isAllowed=y> (verified 17 July 2015).

Appendix B: Track 2 Guidance Document

Goal of the Program:

The goals of the Climate Resilient Farming Program are to reduce the impact of agriculture on climate change and to increase the adaptability and resiliency of New York State farms in the face of a changing climate.

Why Water Management?

Improved water management on farms through the implementation of conservation systems can significantly enhance a farm's resiliency to the impacts of climate change, including both drought and flood. Some conservation systems, such as transferring land to perennial production or forest buffer, can also create beneficial carbon sinks.

What is Water management?

Water management is an effort to prepare agricultural producers for two anticipated, and experienced, impacts of climate change: flood events and drought. The "water management" umbrella includes many conservation systems and component best management practices (see next page) which stabilize or reinforce conveyances, reduce flows, and/or store water. Selection of the most appropriate system or combination of systems, will depend heavily on site-specific conditions and goals. There are practices appropriate for most of the settings that span the agricultural landscape, from the upland areas of the farm to the floodplain and stream corridor.

Planning for water management might be a part of a larger plan, for example, a prescribed grazing plan, a cropland soil conservation plan, or a CNMP.

Water Management and Climate Change

The goals of the Climate Resilient Farming Program include both reducing farms' greenhouse gas footprint (mitigation) and enhancing farm resiliency, given the reality of climate change (adaptation). Projects that have strong potential in both areas are most likely to be funded.

Greenhouse Gas Mitigation

Many water management practice systems are relatively low in changing greenhouse gas emissions or creating carbon sinks. However, converting annual croplands to perennial croplands or riparian forest buffers will create small carbon sinks, so the greenhouse gas mitigation aspects of projects in this track will be scored based on such conversions, if present.

Adaptation

New York has seen a 70% increase in the amount of precipitation from the top percent of rain events from 1958-2010 (Horton et al., 2014). Climate projections expect that trend to continue, and also predict increased overall precipitation and more frequent—possibly annual—short-term (1-3 month) droughts (Frumhoff et al., 2007). Proactive water management decreases the impacts of these weather patterns, by providing water retention (reducing flows during floods and providing storage during drought) and by preparing areas of concentrated flow (drainage ditches, swales, streams) to accept and safely convey larger volumes of water.

Eligible Practice Systems (from the Ag BMP Catalogue) for Track 2 include Erosion Control System – Structural, Irrigation Water Management System, Stream Corridor and Shoreline Management System, Riparian Buffer System, and Prescribed Rotational Grazing and Access Control System. Specific practices may also be used from the [New York State Stormwater Management Design Manual](#).

Note: The practice systems described below and in other RFP materials are guidelines, not an exclusive list. If, however, an applicant chooses systems or BMP components not identified below, consider including more explanation in the narrative section. All applications must be for systems, not discrete components.

In some cases, the water management project location that will lead to enhanced farm resiliency may not be on active farmland. For Track 2 Water Management only, projects may be proposed on lands not being operated as active farms if the project(s) will increase the resiliency of farm(s) upstream or downstream from

the project(s) location. For example, stream corridor management systems consisting of obstruction removal and/or flood plain reconnection can decrease a downstream farm's vulnerability to floods and/or significant impacts from floods. In all cases, specific farms that will benefit from water management systems funded under this program must be identified on the Track 2 application, whether contributing match or not.

Erosion and Sediment Control Systems prevent erosion by directing, slowing, and diffusing concentrated water flows as they travel from the farm to the waterbody, as well as components that to provide upland water storage. Given the potential for more common/much larger storms, consider designing for a much larger flow than typical, building new systems, and/or strengthening existing systems. BMPs listed under this system are:

To direct, slow, diffuse water flows:

- Diversion (NRCS 362)
- Grassed and lined waterways (NRCS 412, 468)
- Culverts
- Rock inlet/outlet protection (NRCS 468)
- Water and Sediment Control Basins (NRCS 350, 638)
- Grade stabilization structures (NRCS 410)
- Rock barrier (NRCS 555)
- Terrace (NRCS 600)

To provide upland storage:

- Wetland (NRCS 657, 658, 659)
- Dam (NRCS 410)
- Pond (NRCS 378)

NOTE: Upland water storage practices could also fall under **Irrigation Water Management Systems**.

Irrigation Water Management Systems provide upland water storage, improving options during drought and the capacity to store water during intense rainfall events. Consider the siting of the system as well as enhanced capacity. BMPs listed under this system include Irrigation Reservoir (NRCS 436) and associated practices.

Stream Corridor and Shoreline Management Systems stabilize and reinforce existing waterways to accommodate high flows with minimal damage. This system could be used to address unmet needs from previous events that still pose threats or as proactive steps. BMPs listed under this system include:

- Channel Bed Stabilization (NRCS 584)
- Stream Bank and Shoreline Protection (NRCS 580)
- Open Channel (NRCS 582)
- Clearing and Snagging (NRCS 326)
- Obstruction Removal (NRCS 500)

Riparian Buffer Systems include components to slow down and soak in water in the event of a flood. BMPs listed under this system include:

- Riparian Forest Buffer (NRCS 391)
- Tree/shrub Establishment and Preparation (NRCS 490, 612)

Prescribed Rotational Grazing and Access Control Systems have components that are at particular risk to damage during flood events. Consider strengthening existing systems or building new, stronger systems for flood resiliency. BMPs listed under this system are:

- Fence (NRCS 382)
- Stream Crossings (NRCS 578)

NOTE: Erosion Control Systems, Riparian Buffer Systems, and Prescribed Rotational Grazing Systems are also components of Track 3 – Soil health. Any given project can only apply to one track, so be sure to determine which track is the best fit for the project.

Frumhoff, P.C., J.J. McCarthy, J.M. Melillo, S.C. Moser, and D.J. Wuebbles. 2007. *Confronting Climate Change in the U.S. Northeast: Science, Impacts, and Solutions*. Synthesis report of the Northeast Climate Impacts Assessment (NECIA). Cambridge, MA: Union of Concerned Scientists (UCS).

Horton, R., G. Yohe, W. Easterling, R. Kates, M. Ruth, E. Sussman, A. Whelchel, D. Wolfe, and F. Lipschultz, 2014: Ch. 16: Northeast. *Climate Change Impacts in the United States: The Third National Climate Assessment*, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 16-1-nn.

Appendix C: Track 3 Guidance Document

Goal of the Program:

The goals of the Climate Resilient Farming Program are to reduce the impact of agriculture on climate change and to increase the adaptability and resiliency of New York State farms in the face of a changing climate.

Why soil health?

Improved soil health on farms can significantly enhance a farm's resiliency to the impacts of climate change, including benefits during times of drought, wet weather, as well as optimal growing conditions. Soil health practices can also create carbon sinks, increase water holding capacity and improve recycling of nitrogen by crops, thereby mitigating greenhouse gas emissions.

What are soil health practice systems?

Soil health practices increase soil organic matter, allow for increased water storage, and reduce sheet/rill erosion through reduced tilling and vegetative cover. Soil conservation systems, erosion control systems, and rotational grazing systems all contain soil health practices, which may include conservation crop rotations, reduced or no tillage, cover cropping, and nutrient management (see next page). While the practices may vary depending on the circumstances of each farm, some basic principles of soil health always apply: keep the soil covered as much as possible, disturb the soil as little as possible, keep plants growing year round, and diversify as much as possible with crop rotations and cover crops.

Soil Health and Climate Change

The goals of the Climate Resilient Farming Program include both reducing farms' greenhouse gas footprint (mitigation) and enhancing farms' resiliency, given the reality of climate change (adaptation). Projects that have strong potential in both areas are most likely to be funded.

Greenhouse Gas Mitigation

Soil health strategies increase soil organic matter and soil carbon, which can—over time—become a carbon sink, sequestering carbon dioxide so that it does not serve as a greenhouse gas and impact climate change. While these gains are very easy to reverse and it is therefore hard to quantify long-term savings, certain practice systems will yield more/faster carbon savings than others. Having a year round root keeps soil in place and allows soil carbon to accumulate, especially when combined with careful nutrient management. Perennial crops and grasses (pasture) build soil carbon even more effectively, so conversions from annual cropland to perennials or pasture will yield soil carbon savings. Similarly, soil health practices in combination with nutrient management work to improve nitrogen use efficiency by crops, thereby reducing the potential for nitrous oxide (N₂O) emissions, a potent greenhouse gas (~298 times the global warming potential of CO₂). Changes in management that include fewer tractor passes across the field result in fuel savings and reduced greenhouse gas emissions.

Adaptation

Climate change predictions for New York State include increased overall precipitation, more severe and more frequent storm/flooding events, and more common short-term droughts. Improved soil health yields benefits during all of these scenarios. Soils with more organic matter hold water more effectively, preventing the worst impacts of a dry season, and can serve as a sponge in a storm, reducing erosion and runoff. These benefits are especially pronounced with year-round cover and/or long-term perennial crops.

Eligible Practice Systems (from the Ag BMP Catalogue) for Track 3 include Soil Conservation System—Cultural, Prescribed Rotational Grazing System, and Riparian Buffer System.

NOTE: The practice systems described below and in other RFP materials are guidelines, not an exclusive list. If, however, an applicant chooses systems or BMP components not identified below, consider including more explanation in the narrative section. All applications must be for systems, not discrete components.

Soil Conservation Systems provide increased water storage and use tilling practices and vegetative cover that reduce sheet/rill erosion. These practices create a first barrier against flows that will, in a storm, eventually be concentrated and reach destructive volumes/velocities.

Some BMPs listed under this system are:

- Forage and Biomass Planting (NRCS 512)
- Conservation Crop Rotation (NRCS 328)
- Conservation Cover (NRCS 327)
- Contour Farming (NRCS 330)
- Cover Crop (NRCS 340)
- Residue and Tillage Management Practices (NRCS 329, NRCS 345)
- Mulching (NRCS 484)
- Strip Cropping (NRCS 585)

Some Soil Conservation System BMPs and/or BMP components are eligible for reimbursement on a per acre basis. See below (next page) for a complete list of reimbursements per acre.

Prescribed Rotational Grazing Systems enhance soil health by providing more perennial pasture.

BMPs listed under this system are:

- Prescribed Grazing (NRCS 528)
- Forage and Biomass Planting (512)
- Fence (NRCS 382)
- Stream Crossings (NRCS 578)

Riparian Buffer Systems include components to slow down and soak in water in the event of a flood. BMPs listed under this system include:

- Riparian Forest Buffer (NRCS 391)
- Riparian Herbaceous Cover (NRCS 390)
- Tree/shrub Establishment and Preparation (NRCS 612 and NRCS 660)
- Fence (NRCS 382)
- Stream Crossings (NRCS 578)

NOTE: Riparian Buffer Systems and Prescribed Rotational Grazing Systems are also components of Track 2 – Water management. Any given project can only apply to one track, so be sure to determine which track is the best fit for the project.

Soil Conservation System BMPs and or BMP components are eligible for reimbursement on a per acre/unit basis (please note, contingency funding is not applicable to BMPs and/or BMP components reimbursed on a per acre/unit basis). The [2019 NRCS EQIP reimbursement rates](#) may be used (they are already calculated for a 75% reimbursement). Any application that includes the above BMPs but requests a different reimbursement must justify their expenses. Any questions or requests for clarification should be asked during the question and answer period, and all determinations will be added to the Questions and Answers document.

Cover Crop Policy

Cover Crop projects will be cost-shared for a three year term. Farmers must be prepared to implement the practice for three seasons. Farms must have participated in AEM Tier 3 (AEM 3A Cover Crop Tool through Part 1, AEM 3A Cropland Conservation Plan, AEM 3A Nutrient Management Plan, or AEM 3B CNMP) prior to application to the Climate Resilient Farming program.

Once the project is awarded, Parts 2 and 3 of the AEM Tier 3 Cover Crop Tool (or equivalent as part of an existing plan) must be completed each year of the contract. The Annual Cover Crop Plan/Design (Part 2) shall be completed annually with producers in time to provide field-by-field recommendations to properly establish the cover crops. The Annual Cover Crop Evaluation (Part 3) shall be completed with the producer after establishment, but before termination of the cover crop.

**Appendix D SAMPLE PROJECT APPLICATION
(DO NOT FILL OUT THIS VERSION)**

**2019 CLIMATE RESILIENT FARMING
ROUND 4**

Part A—Applicant Information

1. Project name:	
2. Applicant Soil & Water Conservation District:	3. Contact Person:
4. Applicant Mailing Address:	5. Contact Mailing Address (if different):
6. Phone:	7. Applicant Email Address:

Part B—General Project Information

8. Type of project: <input type="checkbox"/> Track 1: Agricultural waste storage cover and flare systems <input type="checkbox"/> Track 2: Water management systems <input type="checkbox"/> Track 3: Soil Health systems	
9. Project ID #:	10. Federal ID #:
11. Has/have the farm(s) been inventoried and assessed using the AEM Tier I and II process? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, the farm is not eligible to participate in this program.)</i> Indicate the status of AEM planning (Tier 3 plan) on the farm(s) in this proposal:	
12. If the farm(s) is/are a CAFO (Concentrated Animal Feeding Operation), are they compliant with appropriate requirements? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>(If no, the farm is not eligible to participate in this program.)</i>	

Part C – Project/Farm Details

13. Proposed Start Date:	14. Expected Completion Date:
15. Total Project Costs: \$	16. State Contribution: \$
17. Sponsor Match: \$	18. LO match from personal sources (c, IK): \$
19. Landowner match from other grants, if applicable (Match cannot originate from NYS): \$	20. Total Landowner Match (should equal the answer of #18 + answer of #19): \$

Part D – Brief Summary Statement

Provide a summary statement that describes the proposed project. Describe the current state of the farm(s) with regard to greenhouse gas mitigation and climate change adaptation concerns. Briefly explain how the practice systems to be implemented will decrease the farm(s)' emissions and increase the farm's resiliency.

Part E – Specific Project Description

For Track 1: Agricultural waste storage cover and flare systems

If not applying for Track 1, please write *not applicable* in the text box below.

- A. **Mitigation (16 points):** Please describe the potential of the project to decrease greenhouse gas emissions, including the following information:
- What is the volume of the storage to be covered? What are its dimensions (top length, bottom length, top width, bottom width, and depth)?
 - How many animals does the storage service? For dairies please indicate number of cows and heifers.
 - Will the flare component be chosen to combust lower methane flows during cooler late fall and spring conditions as well as maximum flows often found during summer months? Will the flare have an auto-ignition system powered by battery/solar or direct connection to electrical service? If an open flare, will it have a windshield to protect against wind? How will the flare be monitored to ensure it is combusting gas? (note, see the NRCS-NY 366 Anaerobic Digester Standard for flare criteria)
 - How will the producer track and report the amount of methane destroyed through the system?
 - Is the producer using/actively preparing to use any other low emission, GHG sink, or renewable energy methods elsewhere on the farm (e.g., feed management, on farm wind or solar energy, low or no tillage, cover cropping, etc.)?
- B. **Adaptation (16 points):** Please describe the potential of the project to increase farm resiliency, including the following information:
- What are the farm's current storage needs and capacity? Describe the farm's current and projected risk of overtopping and/or applying manure in adverse conditions. Did the farm apply manure during adverse conditions during recent springs and summers?
 - Describe the farm's plan for managing the water that falls on the cover.
 - Demonstrate the need for resiliency measures on this farm—is it located in a flood plain? Have there been previous flood events on the farm? Does a local emergency management plan describe the farm or the surrounding region as high risk? Are there significant risks from the farm to communities/infrastructure downstream? (Feel free to upload supporting materials to bolster your argument. There will be space for uploads in the uploads section.)
 - Describe the farmer's commitment to emergency management and preparedness.
 - How will the producer or District track and record the impacts of a storm on the farm?

For Track 2: Water management systems

If not applying for Track 2, please write *not applicable* in the text box below.

- A. **Mitigation (16 points):** Please describe the potential of the project to decrease greenhouse gas emissions and increase carbon sinks, including the following information:
- Using [COMET Planner](#), estimate, if applicable, greenhouse gas emission reductions achieved through proposed systems.
 - How many acres of annual cropland will be converted to perennial cropland or pasture? What type (woody, herbaceous, etc.) of perennials?
 - Describe any fuel savings achieved through less tillage, converted fields, etc.? Use RUSLE2 estimates.
 - Describe any improvements in nitrogen management?
 - Is the producer using/actively preparing to use any other low emission, GHG sink, or renewable energy methods elsewhere on the farm (e.g., on farm wind or solar energy, low or no tillage, cover cropping, annuals to perennial conversions)?
 - How will the producer and the District engage in regular testing and/or recording to be able to demonstrate GHG emission savings due to practice systems implemented?
- B. **Adaptation (16 points):** Please describe the potential of the project to increase farm resiliency, including the following information:
- Describe the degree to which multiple BMP systems are being proposed together across land uses as part of a broader water management strategy.
 - If your application includes water management systems to be implemented on nonfarm lands, please indicate and include the following:
 - Farms upstream or downstream that will benefit from the project
 - If those farms are contributing match resources
 - List benefitting farms on the SW-3 form, whether contributing match or not
 - Attach a map(s) at the appropriate scale that shows the projects location and benefiting farm(s)
 - What is the area (acres) treated through the systems proposed in this application? What is the anticipated volume of water managed?
 - Demonstrate the need for resiliency measures on this farm—is it located in a flood plain? Have there been previous flood events on the farm? Does a local emergency management plan describe the farm or the surrounding region as high risk? Are there significant risks from the farm to communities/infrastructure downstream? (Please upload supporting materials to bolster your argument.)
 - If your application includes a system for storing water, what will be the total capacity of the storage? How full do you anticipate the storage will be under typical conditions?
 - If your application includes a system for conveying water, how will you size the conveyances? What level of storm will you design for?
 - If your application includes Stream Corridor and Shoreline Management Systems, describe the current risks downstream in the event of a severe storm.
 - Describe the farmer’s commitment to emergency management and preparedness.
 - How will the producer or District track and record the impacts of a storm on the farm?

For Track 3: Soil Health Systems

If not applying for Track 3, please write *not applicable* in the text box below.

- A. **Mitigation (16 points):** Please describe the potential of the project to decrease greenhouse gas emissions and increase carbon sinks, including the following information:
- Using [COMET Planner](#), estimate greenhouse gas emission reductions achieved through proposed systems.
 - Describe the practice systems to be implemented, including the associated acreage. How many acres of cropland will be converted to reduced tillage, cover cropping, perennial cropland/pasture, riparian forest buffer, etc.?
 - Will there be a reduction in equipment fuel usage due to practice systems implemented, and if so, by how much? Use RUSLE2 estimates.
 - Will there be a reduction in nitrogen fertilizer due to practice systems implemented, and if so, by how much?
 - Is the producer using/actively preparing to use any other low emission, GHG sink, or renewable energy methods elsewhere on the farm (e.g., on farm wind or solar energy, low or no tillage, cover cropping, or annuals to perennial conversions that are not covered in this application)?
 - How will the producer and the District engage in regular testing and/or recording to be able to demonstrate GHG emission savings due to practice systems implemented.
- B. **Adaptation (16 points):** Please describe the potential of the project to increase farm resiliency, including the following information:
- What is the area (acres) treated through the systems proposed in this application?
 - Has any soil testing been done? What are estimated changes in the Soil Conditioning Index and water holding capacity from RUSLE2 as a result of implemented systems?
 - Demonstrate the need for resiliency measures on this farm—is it located in a flood plain? Have there been previous flood events on the farm? Periods of drought? Are there significant risks from the farm to communities/infrastructure downstream? (Feel free to upload supporting materials to bolster your argument. There will be space for uploads in the uploads section.)
 - Describe the farmer’s commitment to emergency management and preparedness.
 - How will the producer or District track and record the impacts of a storm on the farm?

For all tracks:

Scope of Work and Timeframe (8 points):

- Summarize the capacity of the District and any external engineering and technical services to carry out the proposed activities. Feel free to reference your SW-4 worksheet in your response.
- Assess the “shovel readiness” of the project. Is the need for the project clearly described in the farm’s AEM Tier 3 plans? How detailed are the plans? Has any preliminary design work been completed?
- Describe how the project will encourage the adoption of additional BMPs in the watershed beyond what the grant will be funding. For example, a BMP that demonstrates a practice not widely used in an area that could encourage replication on nearby farms, or the farmer commits to using their farm as a “demonstration project” and the District commits to conducting educational programming regarding Climate Resilient Farming.
- What are the other environmental benefits (soil conservation, water quality, biodiversity, ecosystem services, etc.) of your project?

Cost Effectiveness (10 points):

- a. What is the cost share rate (make sure this is consistent with what is documented on the SW-2 form)?
- b. To what extent is this project addressing needs due to farm expansion, as opposed to solely due to the new realities of a changing climate?
- c. Are any matching funds (e.g. local, EQIP, CREP, CRP, EPA 319, etc.) being utilized as part of this project?
- d. Describe how the project will be evaluated to ensure that proper operation and maintenance will be conducted for continuation of the project’s stated benefits.

Part F – Uploads:

The following documents must be uploaded as part of your application:

- SW forms, including:
 - Form SW-1: Farm and landowner information
 - Form SW-3: BMP systems with costs and component practices for each
 - Form SW-4: Project personnel and service costs
 - Form SW-2: The full budget, with cost share amounts and source of sponsor and landowner contributions—should self-populate, based on the other form entries
- SWCD Board Resolution in support of the proposal
- Application checklist and attestation

(Optional) Supporting materials, such as:

NOTE: Any uploaded supporting material must be referenced in the project narrative. If it is not clearly cited in the narrative, there is no reason to assume that reviewers will look at it.

- county/municipal emergency management plans/maps that locate the farm in a high risk area
- farm operation’s emergency management plan
- watershed plans and associated documents
- watershed map
- project location map and/or areal plan map
- before/after photographs or other documentation from a previous flood event
- AEM strategic plan
- COMET Planner tool report (If not chosen as an upload, please indicate sequestration/GHG reduction estimate in proposal narrative.)

Part G – Attestation

I hereby affirm under penalty of perjury that information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Name:
Title:
Entity:
Date: