

Attachment 1
Project Proposal Approved by Board February 1, 2022

RCPA, Ag + OSD... Carbon Sequestration

Project Summary

The Sonoma County Regional Climate Protection Authority (RCPA) will work in coordination with the Sonoma County Agricultural Preservation and Open Space District, Zero Waste Sonoma, Sonoma Resource Conservation District, Gold Ridge Resource Conservation District, Carbon Cycle Institute, Daily Acts, and several additional community partners to increase carbon sequestration through the application of compost on multiple properties in both agricultural and community settings throughout the county. Ideal properties will have an existing carbon farm plan or a natural habitat management plan already developed, along with the ability to incorporate community engagement or public participation as part of the project. Potential co-benefits of this project include soil water retention, erosion control, an increase in soil organic matter, and the ability for the County and other local jurisdictions to meet SB1383 requirements for the purchase and use of recovered organic waste products. Success will be measured by acres of land treated, tons of compost applied, and number of local residents engaged through project implementation and/or community education.

Implementation Timeline

Task	Date
Identify and solicit community partners	Jan 31, 2022
Evaluate and select project locations throughout county <ul style="list-style-type: none">5 agricultural sites at ~25 acres/site = ~125 acres5 community sites at ~2 acres/site = ~10 acres	May 31, 2022
Determine amounts and availability of needed compost and/or equipment	Jun 30, 2022
Secure project workforce for large-scale properties	Aug 31, 2022
Develop schedule for larger agricultural properties using hired workforce	Aug 31, 2022
Schedule volunteer project work-days for smaller community properties	Sep 30, 2022
Purchase and apply compost at selected project sites	Oct 30, 2022
Monitor results, evaluate expanded opportunities, and prepare final reports	Dec 31, 2022

Implementation Budget

Item	Cost
Project Coordination & Reporting (Regional Climate Protection Authority)	\$ 20,000
SB1383 Coordination and Tracking (Zero Waste Sonoma)	\$ 15,000
Technical Analysis and Consultation (Carbon Cycle Institute)	\$ 10,000
Project Implementation - 4 agricultural sites (Sonoma RCD)	\$ 50,000
Project Implementation - 1 agricultural site (Gold Ridge RCD)	\$ 15,000
Project Implementation - 5 community sites (Daily Acts)	\$ 31,000
Volunteer Support - 5 community sites (Daily Acts)	\$ 2,000
Compost, Equipment, Project Labor - 5 agricultural sites	\$ 325,000
Compost, Equipment, Project Labor - 5 community sites	\$ 25,000
Development of Educational Materials	\$ 7,000
Total	\$ 500,000

Partner Organizations and Roles

- Regional Climate Protection Authority - Project Coordination & Reporting
- Zero Waste Sonoma - SB1383 Coordination and Tracking
- Carbon Cycle Institute - Technical Analysis and Consultation
- Sonoma Resource Conservation District - Project Implementation @ 4 agricultural sites
- Gold Ridge Resource Conservation District - Project Implementation @ 1 agricultural site
- Daily Acts - Project Implementation @ 5 community sites
- Daily Acts - Volunteer Support @ 5 community sites
- Outside Vendor - Compost, Equipment, Project Labor - 5 agricultural sites
- Outside Vendor - Compost, Equipment, Project Labor - 5 community sites
- All Partners - Development of Educational Materials

Alignment with County Strategic Plan

Pillar: Climate Action and Resiliency

- **Goal:** Goal 5: Maximize opportunities for mitigation of climate change and adaptation through land conservation work and land use policies.
 - **Objective:** Objective 2: Develop policies to maximize carbon sequestration and minimize loss of natural carbon sinks including old growth forests, the Laguna de Santa Rosa, and rangelands. Encourage agricultural and open space land management to maximize sequestration. Develop a framework and policies to incentivize collaboration with private and public land owners.
- **Department Lead for this Objective:** Ag + OSD
- **Description:** This project would encourage agricultural and open space land management practices that maximize carbon sequestration in both agricultural and community settings. By working with both SCAPOSD and the RCDs, this project will collaborate with both private and public landowners, in addition to incorporating community engagement and public participation for education and promotional purposes.

Decarbonization

Decarbonization exists within this project, but is limited. Carbon Cycle Institute will work with the larger project team to identify and calculate reductions of GHG emissions resulting from this project. Potential direct sources fall into three areas:

- Reduced need for fertilizers – with more compost applied to agricultural lands, nutrients and microbes will be more plentiful in soils and fewer fertilizers will be needed
- Increased soil water retention – with more compost on the selected sites, overall soil health and organic content will increase and additional water will be retained for plant usage
- Reduced need for irrigation – with more water retained in the soil, plants will have greater access to on-site water reserves and less irrigation will be needed to maintain healthy crops

Indirectly, we hope that the outreach and education opportunities will encourage additional GHG emission reductions in the future through increased household composting, increased municipal purchase of finished compost products, and increased application of compost to Sonoma County soils.

Carbon Sequestration and Ecosystem Services

Under a baseline scenario (with no project work complete), we have reduced application of compost, reduced opportunities for increasing carbon sequestration, reduced soil water retention, reduced erosion control, reduced stored soil organic matter, reduced ability to meet SB1383 requirements for the purchase and use of recovered organic waste products, reduced education/engagement opportunities with private rural landowners, and reduced education/engagement opportunities with urban residents.

The proposed project would apply compost to an estimated area of 135 acres (5 agricultural sites @ 25 acres each + 5 community sites @ 2 acres each.) The COMET Planner for CDFA HSP says that compost application on 25 acres of rangeland or pasture sequesters 110 Metric Tonnes CO₂e per year. Vineyard/orchard can sequester slightly more.

Being conservative, we expect that this project will sequester an approximate total of 550 metric tonnes CO₂e on the 125 acres of agricultural lands. We expect additional sequestration potential from the 10 acres of compost application of community sites, but the selection process for these sites will focus on public engagement opportunities first and foremost. For the purpose of these calculations, we are assuming another 40 MTCO₂e for a total of 590 MTCO₂e.

The following “carbon calculators” have been identified to assist with quantification of sequestration potential as final sites are identified and selected:

- <https://calccarbon.com/calculator/>
- <https://ww2.arb.ca.gov/sites/default/files/classic/cc/waste/cerffinal.pdf>
- https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/calrecycleorganics_finalqm_6-15-20.pdf
- <http://comet-planner-cdfahsp.com/>

An estimation of cost per tonne of GHG removed is: \$500,000 / 590 MTCO₂e = \$847.46 / MTCO₂e.

This is for one year only. Depending on the agricultural system where the compost is applied, there could be ongoing annual CO₂e accrual that would significantly reduce the per tonne price.

This project is currently being envisioned as a one-year project with a single application of compost to ~135 acres of land. If applied to a non-tilled setting, carbon from compost will persist for several years. Additionally, photosynthetic carbon gains in response to the compost application could persist for at least 2 decades. During the selection process, agricultural properties with existing carbon farm plans or a natural habitat management plan will be prioritized. The best management practices identified in each plan will be used as guidance for any subsequent land management techniques applied after the application of compost. Sonoma Resource Conservation District and Gold Ridge Resource Conservation District will follow-up with selected property owners on an annual basis for at least three years to verify if there have been any tilling or significant changes at the site.

Resilience and Adaptation

This project aims to revitalize healthy soils and enhance resilient agriculture throughout Sonoma County. The application of compost to agricultural lands has been shown to increase long-term farm productivity, soil and plant health, and resilience to extreme weather, flooding, and drought.

Additionally, Goal 5, Objective 1 aims to identify areas for the General Plan 2025 Update that have the potential to maximize carbon sequestration. This project looks to move forward with implementation prior to the completion of the larger prioritization effort. By building relationships with private rural landowners, public open space and land management agencies, and non-profit community-based organizations, we hope to provide early input to the General Plan update that will be useful in the full prioritization of carbon sequestration opportunities.

During site selection, we will attempt to identify locations that represent the full extent of Sonoma County working lands. Five sites will be predominantly agricultural in nature and five will be community-oriented. We anticipate that the lessons learned by the project team through the process will lead to better methods of land management, better communication methods with private landowners, and improved education of local community residents.

Equity and Community Engagement

We are not aware of any negative impacts to communities of color or low-income residents other than the decision to direct funding toward this carbon sequestration project as opposed to direct investment in equity initiatives.

Two potential outcomes that could potentially impact everyone nearby (regardless of socio-economic status) are dust and odor from spreading overly-dry compost. Given these potential issues, the solicitation for the compost purchase will specify “fully mature compost with a moisture content of 35% or higher.”

Community engagement opportunities will be taken into strong consideration when selecting sites for compost application on community properties. Our goal is to incorporate both direct action and climate education into the process. Ideally, half of our sites will be on private agricultural land with the RCDs taking the lead on landowner outreach and communications. Project implementation on these sites will cover a larger area and will consider where feasible the use of workforce development programs that work with low-income populations or offer job training opportunities.

The remaining half of the sites will be located in more community settings and will offer a spectrum of options for working directly with the community. Potential engagement opportunities involve participating in the application of compost, learning about climate science and carbon sequestration, or monitoring the impacts of the project over time. As properties are identified and evaluated, we will work with each of the receiving site hosts to determine what actions best match the local community in the surrounding area.

As mentioned above, we hope to work with a workforce development partner to provide landscape crews for the application of compost on the agricultural sites. The community sites will allow for more direct engagement with local residents for both direct climate action and for environmental education opportunities.

Final sites have not yet been selected for this project and careful consideration will be given to social equity and community engagement opportunities as these decisions are made. Early ideas for community sites with public engagement potential include locations such as community gardens, City parks, school sites, urban farms, etc.

Leveraging Funds and Community Partnerships

Other funding that has been supporting compost application on agricultural lands in Sonoma County includes funds from CA Department of Food & Agriculture's Healthy Soils Program, and Zero Foodprint's Restore CA program. To date, Restore CA has funded 9 on-farm carbon sequestration projects in Sonoma County. While data on exact grant numbers isn't publicly available, grants under this program are generally capped at \$25,000. To date, CDFA's Healthy Soils Program has awarded 25 incentives grants to support soil health and carbon sequestration in Sonoma County, totaling over \$970,000.

There is potential to pair this project with additional funds from the grant programs identified above. Because these are competitive grant programs, future funding leverage from these sources cannot be guaranteed.

All of the project partners identified in the proposal are working on related climate issues and will integrate this project with their existing work plans. As an example, RCPA is leading the Sonoma Climate Mobilization Strategy implementation effort, with carbon sequestration as one of the four main initiative areas. Additionally, Daily Acts has potential matching funds from existing contracts that could be investigated further if this project is chosen for funding.

In addition to the public agencies leading this effort (RCPA, SCAPOSD, Zero Waste Sonoma), we are already working with a number of community partners to implement this project. Specifically, Carbon Cycle Institute will be providing scientific review and GHG calculations, Daily Acts will be our lead community engagement partner, and the Sonoma Resource Conservation District and the Gold Ridge Resource Conservation District will be leading site agricultural property selection and private landowner engagement.

Additionally, we are reaching out to multiple other partners who may be interested in participating in the project and/or offering input on site selection. Examples include, Conservation Corps North Bay as a potential staffing provider for workforce development, LandPaths as a potential site host, and Petaluma People Services Center for additional community connections and as a potential site host.

The Sonoma and Gold Ridge RCDs actively participate in the North Coast Soil Hub (<http://soilhub.org/>) and will leverage this network to share project information with regional partners.