Project Title: Advancing HSAP Priorities through Sustainable Land Management Education for Homeowners and Landscapers

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Project Description

NOFA/Mass is the Massachusetts Chapter of the Northeast Organic Farming Association. Through education and advocacy, NOFA/Mass promotes organic agriculture to expand the production and availability of nutritious food from living soil for the health of individuals, communities, and the planet. We envision a commonwealth of people working together to create healthy landscapes that feed our communities and restore our environment. NOFA/Mass is well-known and highly regarded in the agricultural and environmental community for its education events and soil health testing. Included in the soil technical services we offer to farmers and the community is the soil carbon proxy testing that we have been performing throughout the state and region since 2016 to help farmers understand and manage their soil organic carbon (SOC) levels.

Education has been a cornerstone of our mission and activities since our inception over 40 years ago. Through in-person events, webinars, newsletters, podcasts, and conferences, we educate farmers, gardeners, and community members about practices relating to soil health, soil remediation, biodiversity, land management, farming, and sustainability. In a typical year, we host over 20 in-person events and 5 webinars, with each event attended by an average of 20 attendees, including two annual conferences that attract an additional 800-1000 attendees each year. In addition, we offer bimonthly online soil health community calls, where staff from our soil technical services program lead discussions and answer questions from the community related to soil health, management, amendments, and healthy soils practices.

The current primary audience for our educational activities is farmers, gardeners, and environmentally-minded community members, including individuals and organizations who work in support of the farming and gardening community. NOFA/Mass has also historically played a role in educating land care professionals on practices relating to sustainability and soil health. In 1999, NOFA/Mass and its sister organization, Connecticut NOFA (CT-NOFA), established the Organic Land Care (OLC) program, administering the multi-day Accredited Organic Land Care Professional (AOLCP) accreditation, which is considered the gold standard of organic landscaping credentials. Thousands of land care professionals from throughout both the northeast and country have obtained the accreditation as a way of both communicating to consumers the recognized set of principles they follow in their work and to further support the health of the landscapes they work in. In 2013, NOFA/Mass transitioned the OLC program entirely to CT-NOFA, which has been administering the program since.

Following the transition of the OLC accreditation program to CT-NOFA, NOFA/Mass has gradually shifted away from educational activities geared towards landscapers and land care professionals. While this shift wasn't deliberate, it has ultimately resulted in a programmatic absence for land care professionals where one previously existed. Despite being run by CT-NOFA, a majority of land care professionals participating in the OLC program are from Massachusetts and neighboring states. The absence of NOFA/Mass programming geared towards land care professionals now represents an unfilled niche in potential educational programming, and a particularly important one for soil health and environmental sustainability, as identified in the Healthy Soils Action Plan (HSAP). As summarized in the HSAP, few land care

industry professionals utilize practices known to improve post-development soil health in Recreational and Ornamental Landscapes due to a lack of knowledge about soil processes, functions, and soil health. Educational activities led by NOFA/Mass can provide a supplement and an alternative to the instruction provided by the OLC program, educating individuals and businesses who otherwise would not be interested in accreditation, reaching homeowners, amateur landscapers, and land care professionals from across Massachusetts. Through less time and cost-intensive webinars and in-person events, we can provide them with the education essential to addressing a vital lack of soil health knowledge and how to incorporate it into landscape management.

Our project seeks to develop an updated soil health education curriculum to provide homeowners, amateur landscapers, and land care professionals (collectively referred to as "homeowners and landscapers" or HAL) with the knowledge and skills to evaluate and manage Healthy Soils Action Plan (HSAP)-identified Developed Lands. Education activities will specifically address Recreational and Ornamental Landscapes by providing practical guidance and management strategies through turf best management practices, nutrient management, tree planting, and testing for soil organic carbon. We will review and expand upon our existing soil health education curriculum, which is geared towards farmers and gardeners, to ensure all recommendations are in alignment with healthy soils practices outlined in the HSAP, and combine it with existing content related to HAL, including the OLC soil health curriculum and best management practices documents geared towards turfgrass professionals. The result will be the development of a new healthy soils curriculum and a series of in-person events and webinars promoting HSAP-identified healthy soils practices that benefit Massachusetts HAL managing Recreational and Ornamental Landscapes. We will also expand web-based support of HAL on the nofamass.org website, post event and webinar recordings on the NOFA/Mass YouTube channel, and develop content specifically geared towards HAL for upcoming NOFA conferences. To establish new connections with HAL, NOFA/Mass and project partners, Resilient Roots and Weston Nurseries, who are both well-established in the land care community, will provide direct outreach and networking in support of the educational events within this project.

Through this project, we will create an educational curriculum, activities, and web content that can re-establish and sustain NOFA/Mass as a resource providing content on soil health best management practices and healthy soils activities for HAL well beyond the duration of this project. Our outreach will target the homeowners, amateurs, and professionals managing Recreational and Ornamental Landscapes, of which, per the HSAP, over half is classified as single family residential. The new curriculum and content will facilitate new education events for HAL, a greater web presence to support HAL between events, and increased community connections to once again increase its recognition as a resource for HAL. It is our expectation that this project can reinitiate our healthy soils-based recreational and ornamental land care education activities, galvanizing our role in supporting and educating the homeowners and professionals managing over 438,438 acres of Recreational and Ornamental Landscapes throughout Massachusetts.

Goals and Objectives

The goal of this project is to educate HAL on healthy soils practices to empower them with skills and knowledge to effectively manage developed lands with practices in alignment with priorities identified in the HSAP. Education activities will be geared towards homeowners, amateur landscapers, and professionals working on recreational and ornamental landscapes. Educational content will focus on promoting HSAP-identified healthy soils practices by improving soil health during and following construction, including: protecting soil, topography, and vegetation, supporting tree planting and biodiversity, post-construction best management practices, and implementing strategies for monitoring soil organic carbon and soil health. Through these activities, NOFA/Mass and project partners will address the Community Engagement objective identified in the Request for Response. Three main objectives will be developed to achieve this goal:

Objective 1 – Expand Educational Content for Homeowners and Landscapers. To achieve this objective, NOFA/Mass staff will distill existing soil health curricula and turfgrass best management practices to develop education and training courses specifically geared towards HAL in Massachusetts. The resultant curriculum will be used in the education events proposed as a part of this project, and will be continually updated and maintained beyond the project period to establish training for HAL as a regular part of NOFA/Mass' routine educational offerings. The developed curriculum will include training on new and existing tools for evaluating soil health, such as soil carbon proxy testing (CPT) training and soil microbial assessments, and how to perform these assessments without damaging developed landscapes. The curriculum will also include tools for managing and treating landscapes with soil health at the forefront, including amending soils for microbial communities and biodiversity, not exclusively chemistry, and instruct on best management practices to improve soil health, such as alternative mowing strategies to minimize soil compaction, maintaining constant soil cover, and emphasizing tree planting. The curriculum that is developed will provide enough content for new and different material to be presented during a minimum of two webinar-format education events and two in-person education events.

Objective 2 – Educate Homeowners and Landscapers on Healthy Soils Practices. Utilizing the curriculum developed in Objective 1, NOFA/Mass soil technical services staff will host six events to educate HAL. Two events will be webinars geared towards HAL in Massachusetts to help address HAL's identified lack of knowledge pertaining to soil processes, functions, and soil health. The webinars will provide an introduction to soil health practices, discuss the critical role soil health plays in the environment, such as through soil organic carbon sequestration, maintaining water quality, and both facilitating and supporting biodiversity, and overview soil health evaluation and treatment strategies. Webinar content will also overview best management practices and summarize the many values for replacing turf with trees and shrubs. Event attendees will be provided a post-attendance survey to identify learning outcomes, which will be used to inform curriculum relevancy, effectiveness, and future course content. Webinars will be recorded and made available on the NOFA/Mass YouTube channel, where they will be linked from the NOFA/Mass land care resources landing page and be widely available online. Based upon historical attendance at NOFA/Mass online events and webinars and predicted

interest, it is expected that 40 individuals will attend each webinar, for a total of 80 individuals reached during the two virtual events.

In addition to the webinars, NOFA/Mass will develop four in-person events with project partners. Two in-person events will be held at Resilient Roots' Barnstable, MA landscape demonstration site, and two in-person events will be held at the education site of Weston Nurseries in Hopkinton, MA. Each partner will host two events, with different content presented at the events, but the content presented may be the same in both locations. The events will utilize the curriculum developed in Objective 1 and will provide in-depth discussions about soil health testing, amendments, tree and shrub planting, and best management practices for healthy soils. Any content overlapping with webinar content will be discussed in far more depth during in-person events. Soil health testing techniques will include instruction on protocols for the CPT assessment tests and strategies for evaluating soil microbial populations. The event will also include best management practices during landscape installation, including approaches to minimize soil disruption to support the existing ecosystem, and strongly emphasizing the high value of tree plantings. Tree planting discussions will discuss guidance for successful turf removal and tree installation, and recommendations of native tree and shrub species that can increase the diversity of the property's flora and fauna. As with the webinars, event attendees will be provided a post-attendance survey to identify learning outcomes and inform future courses. In-person events will also be recorded and will be made available on the NOFA/Mass YouTube channel following the events. Based upon recent attendance at NOFA/Mass in-person events, predicted interest, and capacity restrictions at the landscape demonstration sites, it is estimated that 30 people will attend each event, for a total of 120 individuals reached during the four in-person events.

Objective 3 – Create Sustainable Support for Homeowners and Landscapers Beyond the Project Duration. Making the knowledge, resources, and content developed as a part of this project available to HAL beyond the scope of this project is a key component to the long-term establishment and maintenance of healthy developed landscape soils. To achieve this goal, NOFA/Mass will create promotional materials, website, and social media content to sustain outreach and promotion of its educational events beyond the duration of this project. Promotional materials will be shared with newspapers to provide outreach to the general public, and with land care professional associations. In addition, NOFA/Mass will develop healthy soils programming geared towards HAL at an upcoming NOFA conference. These resources will further the educational impact of this project and position NOFA/Mass as a valuable resource for HAL, allowing us to build upon this foundation to sustain and expand the educational activities developed as a part of this project in future years.

Specific Areas Contributing to the Advancement of the HSAP

This project will work to advance Healthy Soils Action Plan (HSAP) category of Developed Lands, which includes recreational, ornamental, and impervious-dominated land cover. Developed Lands currently account for 20%, or nearly one million acres, of total land cover in Massachusetts and is expected to increase proportionally to increasing development and population trends in coming years. The educational curriculum developed as a part of this

project will primarily be focused on Recreational and Ornamental Landscapes, yet there may be some overlapping content with Impervious-Dominated Land Cover. Recreational and Ornamental Landscapes comprise over 438,348 acres of the Commonwealth, over half of which is classified as single-family residential properties, per the HSAP. This project will address the cited lack of knowledge by land care professionals on soil processes, functions, and soil health to help the individuals managing over 231,495 acres of Massachusetts land utilize best management practices and build soil organic carbon on these properties.

As identified in the HSAP, soil health is most negatively impacted by the development process itself, yet soil health can still be supported post-development through management best practices. Empowering HALs with an understanding of the value of healthy soils, techniques for evaluating soils, management approaches to build soil organic carbon, and best management practices for promoting them on a day-to-day basis is essential to maximizing the health and soil organic carbon sequestration potential of developed landscapes statewide.

HSAP-identified strategies that are essential to building soil health in Massachusetts soils include: increasing soil's functional capacity, regardless of land cover, improving soil best management practices during development activities, and providing HALs with the technical, financial, and analytical support for measuring and monitoring soil health. As discussed in the HSAP, soils that are well-structured and have high organic carbon are more highly capable to withstand weather extremes, including excessive precipitation events and drought. NOFA/Mass has been evaluating these soil characteristics, and guiding farmers on how to build them, for over 10 years. We have the experience and technical skills essential to pivoting our existing educational services to address the needs of HALs to further building soil health across the Commonwealth.

The educational curriculum and events developed as a part of this project will be primarily geared towards post-development healthy soils practices. As presented in the HSAP, utilizing turf best management practices can, by far, lead to greater soil organic carbon sequestration than any other healthy soils best management practice, regardless of land use classification. Tree planting on turf is also identified by the HSAP as having a strongly positive impact on annual soil organic carbon sequestration. The educational curriculum developed through this project will strongly emphasize turf best management practices and tree and shrub plantings for improving soil organic carbon sequestration. Educational content will emphasize sustainable land management practices that support soil health, enhance biodiversity, and improve water quality and soil organic carbon sequestration. As a statewide program that will educate homeowners, amateur landscapers, and land care professionals on soil health practices, testing, and amendments in developed landscapes, this project will be highly effective in its ability to advance the objectives of the HSAP.

NOFA/Mass will sustain educational activities and website content beyond the duration of this project to create a valuable evergreen resource for HAL. Community engagement is a key component to the project as well, as our educational content and resources will be available to homeowners, gardeners, and farmers in and beyond the NOFA community, distilling technical

best management practice recommendations and emphasizing the value of utilizing landscape management strategies in support of soils and the environment.

Methodology

NOFA/Mass will utilize new and existing relationships, knowledge, and content to deliver soil health education to HAL. The breadth of our staff's soil health-related knowledge is extensive, leading to NOFA/Mass' recognition as a regional leader in soil health assessment and management. This project will allow staff to shift their focus from soil health education in agricultural systems to soil health education on developed landscapes. These adjacent topics will capitalize on our staff's existing soil health knowledge base and our organization's recognition as a regional soil health leader to serve HAL moving forward.

When developing educational curriculum geared toward HAL, soil technical services staff, including the Technical Services Director, Soil Technical Assistant, and Soil Health Technical Coordinator, will utilize our existing soil health curriculum as a foundation to streamline the curriculum development process. Soil technical services staff will then review literature and local guidance to identify land care-based recommendations for soil health and tree and shrub installations. These staff will also distill existing soil health-based OLC content from CT-NOFA, facilitating the efficient integration of existing content into new curriculum. Lastly, staff will complete a thorough review of best management practice documents for turfgrass professionals to distill the technical content into a format accessible to HALs, particularly homeowners and amateur landscapers. This content will be accessed from resources identified in the HSAP, including standing regulations and umassturf.org.

Staff will consult with soil health and land care professionals to ensure that the content is complete, timely, appropriate, and realistic for HAL, utilizing technical reference resources to fill in any gaps in curriculum content. Once the curriculum is developed, it will be reviewed by our partners, Resilient Roots and Weston Nurseries, and by NOFA/Mass board member Priscilla Williams, who has spent over 22 years in the land care industry. Ultimately, staff will work synergistically to streamline the review and development of existing and new materials to efficiently develop a cohesive curriculum that educates HAL on strategies for monitoring soil organic carbon and adopting and implementing of healthy soils practices in their daily work.

Events will be developed by the NOFA/Mass Education Events Manager, who coordinates the timing of webinars around greatest availability of HAL, as determined by talking with our partners and other professionals. Webinars will be scheduled for 1.5 - 2 hours in duration and will be promoted well in advance of the event date. Webinars will be hosted and recorded through Zoom to be made available on the NOFA/Mass YouTube channel following the event. Webinar content will be more general than in-person event content, yet will provide attendees with a primer on soil health, best management practices, approaches for improving soil organic carbon sequestration in landscaped environments, and resources through which to learn more. Attendees will have the opportunity to engage with the instructor and, at the end, participate in a back-and-forth discussion. NOFA/Mass has found the opportunity for direct questions,

rather than a webinar with less direct discussion, to be an effective means to engage participants and address their questions and needs.

In-person events will be developed in coordination with the Executive Director at Resilient Roots to be held at their landscape demonstration site in Barnstable, MA, and with the Design and Education Manager at Weston Nurseries to be held at their site in Hopkinton, MA. Events will be 4 - 6 hours in duration and will be designed to orient HAL around healthy soils practices, soil health evaluation, best management practices, and tree and shrub selection, planting, and maintenance. In-person events will be scheduled on days and times that are conducive to the needs of HAL to maximize attendance and impact. It is expected that the first two events will occur between late June and August 2024, and the last two events will occur between September and November 2024. The timing of these events is deliberate to avoid HALs busiest periods while still taking advantage of the benefits of outdoor events. Per feedback from landscapers and land care professionals, workload is typically greatest in the springtime but eases up throughout the summer and into fall. As with the webinars, the in-person events will be recorded, and attendees will have the opportunity for back-and-forth discussions with the instructors. Following both webinars and in-person events, recordings will be processed by the Events Manager and the Website Manager to ensure clarity, and will be uploaded to the NOFA/Mass YouTube channel for widespread access.

Development of additional educational content at an upcoming NOFA conference will be performed by the NOFA/Mass Conference Workshop Coordinator. Several months prior to the conference, the Workshop Coordinator will consult with soil technical services staff to identify potential conference speakers and content priorities. Using this guidance, the Workshop Coordinator will develop conference content that will be of interest to HAL. Possible content includes workshops, keynote speakers, discussion panels, and networking groups. The type of conference content that is developed will be based upon the interests of the HAL and desired format of instruction, as assessed through direct input from HALs or reported by staff.

During the curriculum development process, staff will identify any resources that would be relevant and helpful to HAL to include on the NOFA/Mass website. The resources will then be referenced by the NOFA/Mass Website Manager, who will make them available on a new website landing page. Soil technical services staff will also identify key points to highlight for promotional materials that are shared leading up to webinars and events. Web content will likely include summaries of best management practices, soil health testing recommendations, and tree and shrub selection and planting guidance. Resources and promotional materials developed as a part of this project will be both informational, as to promote soil health, encourage practices that improve soil health, minimize environmental degradation, and enhance biodiversity, and event-specific, promoting the events that are being developed as a part of the project.

To further publicize the events and content beyond the current NOFA/Mass community, we will also provide promotional content to professional associations that are frequently utilized by land care professionals, such as the Massachusetts Association of Lawn Care Professionals,

Massachusetts Association of Landscape Professionals, Ecological Landscape Alliance, and Massachusetts Nursery and Landscape Association. Outreach to the general public, homeowners, and amateur landscapers will occur through media, such as local newspapers, and social media. Promotional content will also be shared with our project partners to share throughout their networks. In-person event promotions will be shared with media in and around the Barnstable and Hopkinton areas to draw upon individuals near the event locations, whereas webinars will be promoted through media statewide. Promotional content development and content sharing will be performed by the NOFA/Mass Graphic Designer, supported by content from soil technical services staff.

All activities performed in fulfillment of this project will be supported by the NOFA/Mass Equity and Inclusion Director. Integrating equity and inclusion principles and guidance into all of our activities helps to uplift and maximize the beneficial impact of our work to underserved communities. Guidance provided by the Equity and Inclusion Director is essential to ensuring that all staff participating in the project are promoting equity throughout the education, activities, and actions of this project. Equity-related guidance provides staff with additional language, cultural, and historical context that can help our events effectively educate HAL of all backgrounds.

Expected Outcomes and/or Deliverables
Each aforementioned objective has an associated outcome and deliverable in fulfillment of this project's goal to educate HAL on healthy soils practices and empower them to manage developed lands with practices in alignment with priorities identified in the HSAP. Expected outcomes and deliverables, per each objective, follow:

Objective 1 – Expand Educational Content for Homeowners and Landscapers
Outcome/Deliverable: Curriculum for six education events (two webinars, four in-person) to help HAL routinely integrate HSAP-identified healthy soils practices, including soil organic carbon testing, tree planting, amendments, and best management practices into their routine activities.

Objective 2 – Educate Homeowners and Landscapers on Healthy Soils Practices
Outcome/Deliverable: Six education events (two webinars, four in-person events), with content geared towards HAL, and recordings made available on the NOFA/Mass YouTube channel.

Objective 3 – Create Sustainable Support for Homeowners and Landscapers Beyond the Project Duration
Outcome/Deliverable: Materials promoting NOFA/Mass' educational events geared towards HAL which can be shared with the general public through local and regional media; website resource development; integration of healthy soils topics for land care topics into upcoming NOFA conferences.

In 2016 we developed and began offering soil carbon proxy testing (CPT) as a fee-for-service test to help farmers measure the carbon content in their soils and understand the relationship between management practices and soil health. In contrast to expensive and unreliable laboratory-based soil carbon tests, the CPT developed by NOFA/Mass observes the soil as an ecosystem, directly measuring the aspects of soil biology that are due to the presence of organic carbon. Soil features are "proxies" for carbon: they can't exist without carbon, and are positively correlated with the presence of carbon. Our CPT was developed into 10 tests derived from various protocols used by Cornell and Ohio State Universities, the Natural Resources Conservation Service (NRCS), Woods End Laboratory, and the Soil Carbon Coalition. The test evaluates: soil surface biology, soil texture and aggregation, bulk density, water infiltration, aggregate stability, earthworm count, soil hardness, soil microbiology, active carbon content, and soil respiration. As discussed in the HSAP, soil structure, water infiltration rate, compaction, soil organic matter, and soil aggregation are closely related to soil organic carbon, soil health, and water quality. These tests effectively capture the close relationships between soil organic carbon and soil health, empowering NOFA/Mass staff to provide individuals with recommendations for effectively managing their soils in support of soil organic carbon, soil health, and water quality. Since 2016 we have performed over 150 CPTs, trained staff at two additional NOFA chapters on CPT procedures to extend the test throughout the region, and provided countless soil health education events demonstrating the test and protocols.

Over the past two years, NOFA/Mass has been expanding its soil technical services staff, increasing its capacity for fee-for-service soil health testing, education, and community support. Four staff members: Rubén Parrilla, Education and Technical Services Director, Melissa Milliken, Technical Assistance Provider, Anna Gilbert-Muhammad, Food Access Program Director, and Laura Davis, Soil Health Technical Coordinator, provide direct community education and support regarding soil health testing, management practices that build soil health, and amending soils to meet both soil and production needs. Rubén and Melissa have been trained through Dr. Elaine Ingham's Soil Food Web school and are highly skilled in soil microbial evaluations, which are at the forefront of current soil evaluation techniques and management strategies. The staff are supported by organization board members John Duke and Viondy Merisma, who are also Soil Food Web trained, and, as a certified Soilsmith, Viondy is an expert on natural farming and soil management techniques.

In 2021, NOFA/Mass expanded its soil testing services to include an analysis of soil microbes. There is a growing recognition among scientists and practitioners of the role biological diversity plays in regulating soil health and plant productivity. Soil microbial diversity is positively correlated with crop diversity, and plant survival and adaptability; improving a soil's biodiversity can decrease chemical fertilizer demand through optimized conversion of organically-bound nutrients into plant-available minerals. Our Biological Qualitative Assessment (BQA) evaluates and interprets soil microbial communities, providing individuals with recommendations for how to amend soils to strengthen and diversify microbial populations to benefit the soils, plants, and environment.

NOFA/Mass believes that soil testing is an essential first step to managing healthy soils. The three types of soil tests we offer help individuals effectively understand the chemical, physical, and biological processes occurring within their soils, and provide recommendations for amending and managing soils to meet specific goals and needs. Our knowledge and expertise on soil health is well-known and highly-regarded in the agricultural and gardening community, yet remains on the periphery of the land care community. This project will provide NOFA/Mass with the tools needed to effectively position itself as a recognized soil health resource amongst HAL.

Beyond our technical capacity, NOFA/Mass has been successfully managing federal and state-funded grants for over 8 years. Through a productive synergism between our Administrative and Development Departments, NOFA/Mass has a proven history of success in managing grant spending, timelines, deliverables, and reporting. The guidance and oversight provided by the Project Manager provides project-related instruction essential to effectively accomplishing project goals and deliverables while meeting timeline and reporting expectations. The oversight, budgeting, and reporting performed by the Administrative and Development Departments allows staff in the Education and Communications Departments to spend their time working towards project goals while meeting deliverables and ensuring comprehensive reporting.

Key Personnel & Roles
Rubén Parrilla, NOFA/Mass Education and Technical Assistance Director, will provide oversight and guidance of all Education Department activities undertaken as a part of this project, including: curriculum development, event planning, and conference activities. His time as Education Director performing these oversight activities will be provided entirely through in-kind support. As Technical Assistance Director, Rubén will be distilling and developing curriculum, leading two webinars and four in-person events. His time for one of the in-person events will be provided through in-kind support. Rubén is trained in Dr. Elaine Ingham's Soil Food Web school, and has led NOFA/Mass in soil health education, soil carbon proxy testing and soil health assessments, and soil microbial assessments since 2021. Rubén is particularly skilled in using natural amendments to support soil health and biodiversity.

Melissa Milliken, Technical Assistance Provider, will assist Rubén in distilling and developing curriculum, leading two webinars and four in-person events. Trained in Dr. Elaine Ingham's Soil Food Web school, Melissa is fully versed in all components of soil health, with a primary emphasis on soil microbiology. Melissa is also trained in natural soil amendments and using natural amendments to promote biodiversity. Her time for one of the in-person events will be provided through in-kind support.

Laura Davis, Soil Health Technical Advisor, will contribute to curriculum development and in-person events. Laura has been providing soil chemical test analysis and recommendations since 2017.

Hannah McDonald, Education Events Manager, will provide planning activities for two webinars and four in-person events as a part of project activities. She will coordinate all logistical components relating to the events, including scheduling, promotion, registration, surveying, and recordings.

Lisa Gilardi, Graphic Designer, will develop promotional materials educating HAL and the general public on HSAP healthy soils principles using content identified by technical assistance staff. She will also develop event promotional materials and disseminate materials through social media.

Liz Hamm, Website Manager, will update the NOFA/Mass website with resources for HAL, event content, and promotional materials. She will also work with Resilient Roots, Weston Nurseries, and other organizations to cross-promote materials and promotional content.

John Duke, Board Member, will provide general oversight and as-needed assistance to curriculum development and events. John has completed the Soil Food Web school's Consultant Training Program and has spent the past 7 years tending and assessing compost with the principles learned from Dr. Elaine Ingham and the Soil Food Web school. His contributions will relate to soil health, biodiversity, and natural soil amendments; all contributions will be in-kind.

Viondy Merisma, Board Member, will provide general oversight and as-needed assistance to curriculum development and events. Viondy has been practicing Korean Natural Farming since 2015 and is a certified "Soilsmith", a certification of his ability to build soil health, increase soil organic carbon, and stimulate soil microbiology while using less fertilizer over time. His contributions will relate to soil health, biodiversity, and natural soil amendments; all contributions will be in-kind.

Priscilla Williams, Board Member, will provide general oversight and reviewing of education curriculum. Priscilla founded and spent 22 years operating an organic land care company, is a founding member of the NOFA Organic Land Care committee, and co-authored Standards for Organic Land Care: Practice for Design and Maintenance of Ecological Landscapes. Her contributions will relate to the specific needs of HAL; all contributions will be in-kind.

Project Timeline

Milestones & Associated Budget:

- February-March 2024:
    - Contract signed
    - Curriculum received from CT-NOFA
    - Curriculum Development (Objective 1):
        - Obtain and initiate review of turfgrass best management practices from standing regulations and umassturf.org
        - Initial review of content to inform curriculum

    - Event Development (Objective 2):
        - Event dates confirmed
    - **Budget Estimate:**
        - **State Funding: Approximately $6,000 (10%) of total state funding spent in accomplishment of these activities**
        - **Match Funding: Approximately $250 (2%) of total match funding spent in accomplishment of these activities**
- March 2024:
    - Curriculum Development (Objective 1):
        - Soil technical services program staff continue review of best management practices content and curriculum from CT-NOFA
    - Event Development (Objective 2):
        - Development of webinar event schedule and registration processes
        - Development of first two in-person event logistics and registration processes
    - Communications & Outreach (Objective 3):
        - Initial identification of resources for NOFA/Mass website
    - Conference Planning (Objective 2):
        - Initiation of planning for Soil Health/HAL content for NOFA Conference
    - **Budget Estimate:**
        - **State Funding: Approximately $12,000 (30%) of total state funding spent in accomplishment of these activities**
        - **Match Funding: Approximately $500 (5%) of total match funding spent in accomplishment of these activities**
- April 2024:
    - Curriculum Development (Objective 1):
        - Continued review of best management practices content, curriculum from CT-NOFA, and HSAP guidance applicable to HAL
        - Share curriculum with affiliated soil health and land care professionals, NOFA/Mass board members, and project partners
    - Event Development (Objective 2):
        - Finalization of planning and logistics for first in-person event with Resilient Roots, scheduled for June 2024
        - Finalization of registration and logistics for first webinar, scheduled for May 2024
        - Continued development of planning and logistics for first in-person event with Weston Nurseries, scheduled for July – August 2024
        - Continued development of planning and logistics for second in-person events with Resilient Roots and Weston Nurseries, scheduled for September – November 2024
        - Continued development of planning and logistics for second webinar, scheduled for November – December 2024
    - Communications & Outreach (Objective 3):
        - Event promotional materials developed

        - Development of resources for NOFA/Mass website
        - *Milestone:* Integration of healthy soils resources for HAL onto the NOFA/Mass website and expanded social media content
    - Conference Planning (Objective 2):
        - Continuation of planning for Soil Health/HAL content for NOFA Conference
    - **Budget Estimate:**
        - **State Funding: Approximately $22,000 (55%) of total state funding spent in accomplishment of these activities**
        - **Match Funding: Approximately $750 (7%) of total match funding spent in accomplishment of these activities**
- May 2024:
    - Curriculum Development (Objective 1):
        - Incorporation of feedback from curriculum reviewers
        - *Milestone:* Finalization of curriculum content for webinars and events
    - Events (Objective 2):
        - *Milestone:* Webinar 1
        - Uploading of Webinar 1 to the NOFA/Mass YouTube channel
        - Post-event surveying, update of curriculum content based upon feedback from webinar
        - Finalization of event logistics and registration processes for first in-person event with Resilient Roots
    - Conference Planning (Objective 2):
        - Continuation of planning for Soil Health/HAL content for NOFA Conference
    - Communications & Outreach (Objective 3):
        - Webinar promotional materials shared through social media and with project partners, media, and professional organizations
        - Updates to the NOFA/Mass website and social media content
    - **Budget Estimate:**
        - **State Funding: Approximately $28,000 (70%) of total state funding spent in accomplishment of these activities**
        - **Match Funding: Approximately $1,000 (9%) of total match funding spent in accomplishment of these activities**
- June 2024:
    - Curriculum Development (Objective 1):
        - Refinement of curriculum with feedback from webinar
    - Events (Objective 2):
        - Finalization of logistics and registration for in-person event at Resilient Roots
        - *Milestone:* First in-person event with Resilient Roots
        - Uploading of event recording to the NOFA/Mass YouTube channel

        - Registration finalization for second webinar, first in-person event at Weston Nurseries, and second in-person events at Resilient Roots and Weston Nurseries (these events will occur after July 1, 2024)
        - Post-event surveying
    - Conference Planning (Objective 2):
        - Continuation of planning for Soil Health/HAL content for NOFA Conference
    - Communications & Outreach (Objective 3):
        - Updates to the NOFA/Mass website and social media content
        - Social media and dissemination of promotional materials with project partners, media, and professional organizations leading up to event
    - **Budget Estimate:**
        - **State Funding: Approximately $38,800 (93%) of state funding spent in accomplishment of these activities**
        - **Match Funding: Approximately $1,250 (12%) of total match funding spent in accomplishment of these activities**
- July – August 2024:
    - Curriculum Development (Objective 1):
        - Refinement of curriculum with feedback from in-person event
    - Events (Objective 2):
        - Finalization of logistics and registration for in-person event at Weston Nurseries
        - *Milestone:* First in-person event at Weston Nurseries
        - Uploading of event recording to the NOFA/Mass YouTube channel
        - Post event-surveying
    - Conference (Objective 2):
        - *Milestone:* Hosting of Healthy Soils content for Landscape Professionals at the NOFA Summer Conference
        - Discussions to gain feedback from HAL participants to inform future events and conferences
    - Communications & Outreach (Objective 3):
        - Ongoing updates to the NOFA/Mass website and social media content
        - Social media and dissemination of promotional materials with project partners, media, and professional organizations leading up to event
    - **Budget Estimate:**
        - **State Funding: Approximately $40,300 (96%) of state funding spent in accomplishment of these activities**
        - **Match Funding: Approximately $2,400 (22%) of total in-kind funding spent in accomplishment of these activities**
- September – December 2024
    - Curriculum Development (Objective 1):
        - Revisions and updating to course curriculum informed by event feedback
    - Events (Objective 2):

        - Finalization of logistics and registration for two in-person events and one webinar
        - *Milestone:* Second in-person event at Resilient Roots to occur between September – October 2024
        - *Milestone:* Second in-person event at Weston Nurseries to occur between October – November 2024
        - *Milestone:* Second webinar to occur between November – December 2024
        - Uploading of event recordings to the NOFA/Mass YouTube channel
    - Communications & Outreach (Objective 3):
        - Ongoing updates to the NOFA/Mass website and social media content
        - Social media and dissemination of promotional materials with project partners, media, and professional organizations leading up to events
    - **Budget Estimate:**
        - **State Funding: $41,801.72 (100%) of state funding spent in accomplishment of these activities**
        - **Match Funding: $10,800.36 (100%) of total in-kind/match funding spent in accomplishment of these activities**

NOFA/Mass will complete as much of event preparations prior to June 30, 2024 as possible, to maximize the amount of state funding that is spent within the current fiscal year. This includes webinar and in-person event scheduling and logistical coordination with partners, development of event registration systems, production of outreach and promotional materials, and website modifications and updates. One webinar and one in-person event will each be held prior to the end of the fiscal year; the remaining events will be held between July 1, 2024, and December 31, 2024.

It had been our original goal to have all state funds spent prior to the end of FY2024, yet we feel it is essential to ensure events are timed to coordinate with HALs greatest availability. Events in the springtime would occur during the busiest period for HAL and is therefore not ideal, even if it better accommodates a priority of this RFR. Extending our project past the end of the current fiscal year will effectively educate as many HAL as possible and maximize the total impact of our project and, ultimately, the positive benefit to Massachusetts soils.

Our intention is to build the educational content developed as a part of this project into our programming for 2025 and beyond. To achieve this, we plan to continue the following activities in 2025: education events tailored to HAL using the curriculum developed through the project; expanded outreach, networking, and partnerships with landscape organizations to establish relationships with new organizations and demonstration sites; and maintained and updated website content to reflect evolving healthy soils knowledge, priorities, and content relevant to HAL and the education activities offered by NOFA/Mass. These activities will be performed beyond the project period, and will be 100% financially supported by NOFA/Mass without requiring additional state funding. Thus, they are not included in the timeline for this project, but will occur to sustain the activities developed with HSAP funding beyond the project period.

Project Evaluation and Monitoring

Performance Metrics

Successful execution of this project, and meeting project goals, is reliant upon three metrics, which are directly connected to each of the objectives:

- Metric 1. Successful development of an effective curriculum that can be used both during the duration of this project and beyond (fulfilled through Objective 1)
- Metric 2. Effective instruction of healthy soils practices, including testing, best management practices, tree planting, and amendments, to HAL through two webinars and four in-person events (fulfilled through Objective 2), and
- Metric 3. Increasing awareness of HAL in the healthy soils resources, education, best management practices, and support available from NOFA/Mass, both during and beyond the project (fulfilled through Objective 3)

Success in Metric 1 will be achieved through the effective combination of new and existing educational content into a cohesive curriculum tailored to HAL. This metric is qualitative and will be deemed successful through the completion of a curriculum for six events that can inform HAL on healthy soils practices that can be effectively assimilated into their work. The curriculum will be reviewed and updated following each event to ensure the content fully addresses the needs and questions of participants.

Success in Metric 2 will quantitatively evaluate the effectiveness of the developed curriculum and the events (including delivery method, location, and content) through post-event surveys of participants. Participants will be asked questions that assess changes in their knowledge of healthy soils practices and their likelihood of implementing new practices in response to the event. It is expected that 40 HAL will attend each of our webinars, and 30 HAL will attend each of our in-person events, for a total of 200 participants who attend events sponsored by this project. Events will be deemed successful if a minimum of 90% of the total number of HAL who attend the events report learning outcomes from the event, and 80% of the HAL report plans to incorporate portions of their learnings into practice.

Success in Metric 3 will qualitatively and quantitatively assess NOFA/Mass' effectiveness in positioning itself as a knowledge resource for HAL. This will be qualitatively evaluated through the successful development of promotional content geared toward HAL. Through this project, we plan to develop a minimum of six different promotional materials supporting HAL. The success of Metric 3 will be quantitatively evaluated through the interest level of our online content geared toward HAL (measured through NOFA/Mass website visits and YouTube video engagements), registration at future events geared towards HAL, and the professional association of event attendees and new members. Success will be seen through a combined 1,500 engagements with the land care resource website and the NOFA/Mass YouTube event recordings within 6 months following their online availability.

Reporting
Performance metrics will be reported to the Executive Office of Energy and Environmental Affairs (EOEEA) through performance reports submitted quarterly. Performance reports will include a summary of activities accomplished during the quarter and progress towards each metric. A final project report will be submitted to the EOEEA that discusses final project performance and the project's success in achieving the predetermined metrics and project objectives. It will also provide a projection of metric success based upon forthcoming activities and engagement with online content.

Sustainability Plan
Post Grant Project Sustainability Assessment
Following project completion, NOFA/Mass will continue to educate HAL on soil health principles relating to sustainable land management, best management practices, tree and shrub planting, minimizing environmental degradation, improving soil health, and enhancing biodiversity through the educational and promotional materials developed as a part of this project. NOFA/Mass will continue to utilize promotional materials supporting this messaging to further enforce these priorities amongst HAL and the general public. Promotional materials will be shared through the NOFA/Mass website and social media indefinitely, and will also be shared with Resilient Roots, Weston Nurseries, and professional organizations for their cross-sharing.

In addition, NOFA/Mass will continue to host soil health education events with content addressing the specific needs of HAL. It is our expectation that we will be able to intake HAL into our network, providing a greater resource to these professionals seeking to adopt healthy soils practices into their work. In contrast to professional or certifying organizations for land care professionals, our events will be available for free or at a nominal cost to participants, typically under $100 per event, with a sliding scale, making them more accessible than those that are more expensive or require a professional affiliation or certification. The expectation is that, long-term, this will attract a greater number and a wider diversity of land care professionals than would be reached through professional or certifying associations, as well as reaching homeowners and amateur landscapers. Helping others understand, adopt, and utilize healthy soils practices is a cornerstone of NOFA/Mass' mission, and this project will rejuvenate our efforts to effectively educate HAL.

Sustaining these events beyond the project period, particularly with nominal costs to event participants, will be supported by increased membership fees and fee-for-service soil health testing by HAL. As the content and the majority of the promotional materials for events will have been created with project funding, events that occur after the end of the project will only require staff time relating to event planning, delivering the event, and any site fees. Thus, costs for events after the project period will be relatively low thanks to the initial support provided by this funding program. If, throughout the duration of this project, NOFA/Mass is successful in gaining more interest and involvement from HAL, they will indirectly support future events and content by becoming NOFA/Mass members. Our fee-based organization membership is available to the general public on a sliding scale and supports our events, programming, and

educational content throughout the year. An increase in membership from HAL will positively inform the value and priority of these events in future years. It is expected that HAL will also utilize the fee-for-service soil health testing offered by NOFA/Mass, which will provide further funding for future events. Combined, this additional revenue will financially sustain events geared towards HAL beyond the project period. It is our expectation that we should be able to provide an additional 3-4 in-person events and 2-3 webinars for HAL in 2025 and in subsequent years. In addition to the two partners who will be hosting events for this project, other land care organizations have expressed an interest in hosting in-person events geared towards HAL moving forward.

NOFA/Mass will also continue teaching HAL through healthy soils content at its conferences. Guided by increased membership by HAL, use of fee-for-service soil health testing, and event interest, NOFA/Mass will further expand its conference-based healthy soils content for HAL. This content support can occur through a variety of approaches, including: workshops geared towards HAL, a healthy soils track that provides education related to soil health testing, biodiversity, and management, a keynote speaker discussing healthy soils and land care, panel discussions between soil health practitioners and HAL, and networking groups for HAL in attendance. These conference-based activities will be informed by the interest of the HAL participating in our programming throughout the year, and will be funded by conference and membership fees.

Partners Involved and Role
Two landscaping organizations, Resilient Roots and Weston Nurseries, are partnering with NOFA/Mass on this project. They will host in-person events, and provide general and targeted outreach and support to promote events and gain interest in the healthy soils educational opportunities being developed through this project.

Resilient Roots is a nonprofit whose mission is to educate people on how to be good stewards of the earth. Using natural ecosystems as a model, Resilient Roots teaches people about growing food organically, creating landscapes that include native plants, and regenerating the ecosystem's health. Resilient Roots envisions a region of interconnected backyards that are abundant with food and support the native insects and wildlife that are the foundation of the food web. Believing that everybody can grow food and create a biodiverse, connected ecosystem in their own backyard, Resilient Roots works to enable this by providing tools and understanding of ecosystem function.

In-person events developed as a part of this project will be held at the Fuller Farm Demonstration Garden, a property owned and used in collaboration with the Barnstable Land Trust. The Fuller Farm Garden is a demonstration space used for education, recreation, growing food, and to increase diversity and enhance wildlife habitat. It includes plantings that show how to install an assemblage of plants that support each other and that will be self-sustaining and low maintenance. Every year the site is augmented with new areas to teach people how to replicate these activities in their own yards.

Resilient Roots is led by Founder and Executive Director Kristie Kapp, a regenerative landscape designer focusing on edible and native plantings. Kristie has a master's in ecology from Yale School of Environmental Management and over 25 years of farming/gardening experience. She has taught every age group through several different organizations, and has been creating permaculture landscape designs for clients for over ten years. Kristie will contribute to this project by coordinating site-level logistics at the Fuller Farm Demonstration Garden, cross-promoting events, providing outreach to area land care professionals and landscapers, and the general public, and furthering outreach efforts by networking with local garden centers frequented by landscape professionals.

For over 100 years, Weston Nurseries has been a valuable resource to landscapers and the surrounding community. Through its four retail garden center locations, Weston Nurseries provides plants and landscaping products, including trees and shrubs. They are committed to growing and selling native plants to positively impact the environment, and, moving forward, are focusing on offering plants that can support local native biodiversity. The Nurseries' newly-formed Sustainability Committee is developing short and long-term sustainability initiatives.

In addition to online educational resources geared towards homeowners and landscapers, Weston Nurseries helps educate the public through weekly emails, blog posts, and its weekly "Ask the Expert!" live Zoom sessions. Its staff also provide regular education events, such as seed starting, pollinator garden design, and elements of landscape design. Their Hopkinton, MA garden center will host two in-person events for this project.

Trevor Smith, Design and Education Manager at Weston Nurseries, will be contributing to this project for Weston Nurseries. Trevor holds several landscape certifications and is a past President and current Trustee of the Ecological Landscape Alliance. He is an award-winning regenerative landscape designer, specializing in green infrastructure, native plant design, habitat creation, and the implementation of ecological design principles.

Community Engagement

NOFA/Mass expects that effective education of HAL will positively inform future involvement by these professionals, ultimately leading to a greater engagement of HAL in our content over time. Engagement of the community of HAL will occur, and be sustained, by consistent programmatic and guidance, ultimately creating a positive feedback loop of interest from HAL, increased involvement, and forward-looking events and education activities developed by NOFA/Mass. Promotional activities and outreach will be used to further increase engagement, both in NOFA/Mass as a resource for HAL and in future education events.

If it appears as though NOFA/Mass is failing to engage and sustain the involvement of HAL in our ongoing education and events, we will evaluate our existing outreach mechanisms and work to identify new potential land care partners. New outreach will occur through increased targeted promotions in newspapers and media throughout the state and direct communications to landscapers and land care organizations. We will also directly collaborate with the HAL who are in our network, and provide opportunities for feedback on ways in which

to increase engagement with other professionals, such as through a shift in the education content, type/delivery, or timing.

Risk Assessment for Project, Partners, Timeline

Identification of Risk Considerations

Potential problems during the curriculum development may occur as a result of the relatively short amount of time between contract signing and the first events, particularly given the extended proposal deadline. Delays in developing and finalizing the curriculum could come from delays in receiving existing content from CT-NOFA, or having an overabundance of materials to distill into the curriculum.

A second potential risk is a challenge in scheduling the webinars and events in the relatively short project duration. NOFA/Mass typically aims to start planning its events 6 months before the event, with all promotional materials in place roughly 6 weeks prior to the event to allow for enough time for promotion, cross-promotion, and registration. In addition, weather can present an issue for outdoor demonstrations.

Lastly, there is the risk that we are unable to successfully market the project to HAL, and we are unable to fill the events. This will be observed through low registration numbers, particularly from registrants who self-identify as a land care professional specifically.

Mitigation Strategies if Needed

Curriculum-based delays will be addressed by utilizing the assistance of NOFA/Mass board members, who typically largely serve in an advisory role within the organization, to provide more direct support and assistance to staff in refining and developing the educational curriculum. It is expected that this additional guidance and support will help streamline the materials review process, allowing staff to effectively compile the content that is most critical to HAL. NOFA/Mass has three board members who are particularly well-qualified to assist in this role, with two members having comparable soil health knowledge and experience as staff, and one member who is an authority on organic land care practices.

It will be essential that staff initiate event planning once the contract is signed to mitigate the effects of the relatively short project timeline. Given the compacted timing of this project, and the effort to have 93% of state funding used by June 30, 2024, NOFA/Mass, Resilient Roots, and Weston Nurseries are holding the dates for events in anticipation of having funding to support land care events on those dates. This will allow us to head off any potential issues that could arise from the shortened event planning timeline. Furthermore, while we strive to have events planned 6 months in advance, it is not uncommon for us to fully plan webinars and in-person events in the span of 2 months. Thus, we are holding event dates now, in anticipation of receiving funding, to streamline the planning process once funding is received.

Lastly, the educational demonstration sites at both Resilient Roots and Weston Nurseries include covered shelters that can be used in the event of moderately inclement weather; any severe weather will require an alternative date as a rain date. Outdoor demonstration

activities, such as soil testing, will have to be modified to adapt to the weather restrictions, with a shift in the timing of the event or order of event content, or improvising by performing indoor demonstration, such as showing how a penetrometer works or bringing a microscope to facilitate soil microbial analysis.

Challenges recruiting HAL to events will be addressed by evaluating promotional efforts for the first events – the first webinar and the first in-person event – and identifying strategies for even further increasing outreach and promotion. The iterative nature of our events allows us to self-reflect upon both successes and challenges from prior events, and any challenge relating to attendance will require us to identify gaps in our promotion and outreach, and further search for alternative sources of promotion. Strategies to increase promotion will include more direct outreach to professional associations, direct communications with vendors and suppliers for land care professionals for further networking, and increased promotion on social media and newspapers available to the general public. We will also increase our outreach and promotional efforts to homeowners and amateur landscapers by sharing content geared towards the general public with additional media. If, despite these efforts, we remain unsuccessful in filling the planned events, we will also expand direct outreach and promotion efforts to farmers and gardeners. Farmer and gardener outreach would be considered a “last resort”, but still one of great importance, as the content will still be relevant to those in a slightly different field, and will still allow us to further our education relating to healthy soils.