Middlesex Conservation District
319 Littleton Road, Suite 205
Westford, MA 01886
(978) 692-9395

Middlesex Conservation District
Healthy Soils Action Plan Challenge Grant Application

TITLE OF PROJECT: Healthy Soils Action Plan: Transitioning Lawns into Meadowlands

PROJECT DESCRIPTION:

The FY 2024 Healthy Soils Challenge Grant will provide the Middlesex Conservation District the funding for a pilot project to oversee the implementation of transitioning lawns into naturalized meadowlands. We already have one pilot plot identified for this project. The district has seen a recent resurgence of interest in the sustainable use of land, even in the developed context. Furthermore, there has been an increased interest in planting native plants instead of ornamentals. We would like to identify four to five pilot plots to implement this plan.

Project Goal:

- Address climate change, improve soil health, and improve water quality within the suburban and urban landscape of Middlesex County.

Project Objectives

- Improve soil health by reducing the need for fertilizer, herbicides, pesticides, and overwatering. This also will improve water quality by reducing runoff and chemicals leaching into waterways.
- Address climate change by encouraging people to plant native species instead of non-native or invasive plants, thereby increasing habitat with native plants. Native species are stressed by climate change and loss of habitat. Pollinators are also stressed by climate change.
- Educate landowners, landscapers, and landscape designers through workshops, presentations, and demonstration plots.
- Provide access for native plant species to the public.

Advancements to the Healthy Soils Action Plan

The Middlesex Conservation District will advance the objectives of the Healthy Soils Action Plant by converting places with non-native or invasive species to native plants that are more tolerant to heat and drought, and by converting abandoned degraded areas to native species meadowlands. Such degraded areas include places that are or were impervious. This project will also increase water quality by reducing or eliminating the need for irrigation and by reducing the chemicals used on lawns. We will increase community engagement by holding workshops and demonstrations to increase awareness and knowledge of the impact lawns have on soil health, water quality, biodiversity, and climate change. Demonstrations will display what we are doing to address this issue. These educational programs will increase knowledge of native plant species available for the public to purchase. The district will also be providing native seeds for the public to use on their residential properties.

Methodology

To help implement Massachusetts' Healthy Soils Action Plan, the Middlesex Conservation District has created a Challenge Grant proposal for $20,000 between now and the end of fiscal year 2024. The grant will be used to create a pilot project that will eventually help the district create a permanent program to help landowners in suburban neighborhoods transition their lawns into meadows of any size. We are also seeking this grant to help educate both homeowners and landscapers on the benefits of using native plants, including specific content on native plant benefits and the importance of soil health, thereby improving soil health practices within the suburban and urban landscapes of the county. Education will be through the use of workshops and/or presentations targeted at these two audiences. Venue locations and times will be determined to best suit the needs of these two communities. The district will also provide technical assistance and access to both materials and resources. Our primary focus of the pilot project will be lawns, ornamental landscapes, and degraded surfaces such as areas with cement covering the soil. This program will include:

- Identify potential locations for pilot plots by reaching out to our email list and posting fliers in locations around the county including town offices and local meeting places.
- Direct technical assistance to homeowners from the district looking to administer the pilot project on their land. The assistance includes supplies, tools, seed stock, soil testing, and equipment to conduct the transitioning of their lawns to meadows.
- The development of educational resources located on our website and social media on how healthy soils are connected to a healthier climate. These resources will include brochures, videos, and more for people to learn about the benefits of healthy soils and native plants. A tour of our plots will help homeowners and landscapers see what a meadow can look like.
- Conducting outreach in the form of workshops and/or presentations that will be used to educate homeowners, landscapers/landscape designers on the impacts of healthy soil practices and how they relate to climate change. The district will also oversee recruitment of an audience through social media, the district website, and through email channels.
- Collecting data from the pilot plots and sharing the results of the program.

The district has also been putting on biannual plant sales that have helped raise funds for the district. This year, we have refocused our current and future plant sales solely on native plants to help support pollinators, including hummingbirds, native bees, butterflies, moths, and others. The plants will help support native ecosystems and pollinators, beginning in the crucial early spring months through frost. These new plant sales will provide homeowners with seeds, and seedlings, with stock to naturalize their yards, permaculture landscape, and gardens.

This grant will help MCD to successfully implement a new program that helps implement the Healthy Soils Action Plan. To reach our goals and objectives, we will use these grant funds to buy all necessary equipment, plant stock, and hire necessary labor. Part of these grant funds will be given to the District Administrator to increase the time available to spend on the pilot project. She will be responsible for being the liaison, managing the budget, management of the work plant, and the creation and management of the workshops and demonstrations. The district will also be hiring a Landscape Assistant who will assist with the physical transitioning of pilot plots from lawn to meadow and going to homeowners to monitor success of plant growth.

The Middlesex Conservation District operates solely within Middlesex County, Massachusetts. The total square mileage of the county is 817.9 square miles and includes a total of 54 municipalities (U.S. Census Bureau, n.d.). The cities of the county include Cambridge, Everett, Framingham, Lowell, Malden, Marlborough, Medford, Melrose, Newton, Somerville, Waltham, Watertown, and Woburn. In the 2020 United States Census, there were approximately 1,632,002 people living in the county and about 638,217 households (U.S. Census Bureau, 2020; U.S. Census Bureau, 2022).

Within the county, the communities the MCD serves, including how they are involved with us, entail:

- NRCS Cooperators
    - MCD can provide help to landowners who need assistance when participating in NRCS programs. We also provide resources on our website for landowners and farmers who wish to easily find information about NRCS grant opportunities.
- County Residents including Landowners
    - The district provides educational resources, such as information on our website, social media, workshops, tours, and presentations to provide residents with data and facts on the environment that relate to soil and water conservation and quality. Landowners may also participate in our plant sales by buying plants, seeds, or supplies.
- Spring and Fall Plant Sales Customers
    - Customers who participate in our biennial sales are those who have historically been interested in the environment and gardening. They appreciate having the ability to purchase plants through us and know that we strive to provide the best available products. With our new plant sales, customers will now be able to buy plants that will help with soil quality, water quality, water consumption, pollinators, and biodiversity. Our newsletter mailing list is another essential tool that the district uses for outreach to county residents and landowners.
- Government Officials including Municipal Governments

    - Government officials have attended our previous annual meetings where we have provided a speaker to discuss an environmental topic. Such topics have included climate change and patterns of landscape changes over several decades.
- Non-Governmental Organizations (NGOs)
    - We have partnered with NGOs focused on conservation, environment, water, and other land issues. The district and these organizations have worked together on previous projects, workshops, and presentations.

Expected Outcomes and/or Deliverables

- At least four demonstration areas within the county converting lawn areas to native species meadowlands. The focus will be sections of people's yards and potentially outside of commercial spaces to demonstrate the beneficial impacts of native plantings.
    - We will aim to also include one demonstration plot with degraded surfaces that will be removed. This will be dependent on finding a proper location. This will be helpful in convincing people to pursue the installation of conservation practices in developed areas.
- Transitioning lawn areas to native meadowlands will:
    - Decrease usage of fertilizers and pesticides on pilot plots, as compared to traditional lawn management levels.
    - Increase the number of locations and total area with native plants & meadowland in the county.
    - Increase the amount of habitat for birds and insects.
    - Have long-term benefits on soil health.
    - Be aesthetically pleasing with an influx of color from flowers, butterflies, and birds.
- We will put on two presentations/workshops.
    - The first will be for homeowners/land stewards and the general public to inform them of the benefits of and process for transforming their yard to a native meadowland. It will also cover general soil health and actions that every person can take to improve the soil health of their yard, even if they are not ready to transition their yard to meadowland.
    - The second will be for landscape professionals on best practices for transitioning lawn areas to meadowland. While this presentation will also have scientific evidence of the benefits of native plantings and the importance of soil health, the focus will be hands-on training on the steps involved in the transition process.
- For each pilot plot, the following information will be collected into a report:
    - We will take a soil test before the project begins to determine the baseline health of the soil.
    - We will make a detailed report that includes the moisture of the area, what methods the land user currently employs to maintain the land (pesticide, fungicide and fertilizer use, aeration, frequency of mowing, etc.), the sun & shade conditions of the area, how close to the road the area is, and any other notable features of the plot.

    - We will make a sketch of the plot with the proposed design of the meadowland section, if less than the entire area of the lawn. This will be a communication tool to make sure that all parties are on the same page regarding the scope of the project.
    - Our methods for removing the grass for each plot will be noted for future comparison.
    - As the native plants start to grow, we will visit the plots and make note of which plants seem to be the most successful and how well they are taking off. If additional seeds need to be laid or other action needs to be taken, we will communicate with the homeowner/land steward to make it happen.
    - While it may be beyond the scope of this grant, we will also collect soil samples one year out after the transition to determine how the soil may be different. Ideally, we would monitor the plots for up to 5 years as this sort of transition may take considerable time.
- In the late summer or fall, we will coordinate two tours of demonstration plots for the general public and landscape professionals.

BUDGET:

Income	**HSAP**	**In-Kind Match**	**Matching Funds**	**Total**
EEA Grants	$20,800.00			$20,800.00
Other Grant Source	$0.00			$0.00
Total Income	$20,800.00			$20,800.00
Expenses				
Payroll (District Administrator) including taxes	$12,500.00			$12,500.00
Volunteer Time		$10,000.00		$10,000.00
Rototiller	$300.00			$300.00
Impervious Cover	$300.00			$300.00
Mulch	$300.00			$300.00
Loam	$300.00			$300.00
Seeds	$180.00			$180.00
Erosion Control	$200.00			$200.00
Lawn Aerator Shoes	$80.00			$80.00
Spray Paint/Chalk	$40.00			$40.00

Labor	$4,000.00			$4,000.00
Manual Seed Drill	$600.00			$600.00
Truck Rental	$700.00			$700.00
Meeting Expenses	$500.00	$500.00		$1,000.00
Workshop/Demonstration Expenses	$500.00	$500.00		$1,000.00
Soil testing	$300			$300
In Kind Contributions				$0.00
Vehicle Usage	$400.00			$400.00
Land use of Pilot Plots		See Note*		
Total Expenses	$20,800.00	$11,000.00	$0.00	$31,800.00
Net Income	$0.00			$0.00

*While we cannot put a monetary value on the land used for these pilot plots, we want to note our appreciation to those who volunteer their land for pilot plots.

ORGANIZATIONAL CAPACITY:

The Middlesex Conservation District has four voting supervisors who hold the responsibility of deciding current and future projects. Supervisors meet once a month to discuss district operations, meet with the administrator, and approve district activities. The district administrator, Andrea Grossman, has worked hard in her administrative duties as well as writing grant proposals and helping restart the plant sales. MCD is looking to increase our supervisors and staff.

List and details of Previous Achievements:

Every year the Middlesex Conservation District holds a plant sale that serves the entire county. We buy plants in bulk and sell them to the public to raise funds for additional conservation programs. We have long-standing relationships with nurseries and local venues to make this possible. The process includes selecting which plants to procure and determining necessary quantities based on previous demand, securing a venue for plant pick-ups, maintaining, and keeping track of inventories, updating the website to describe offerings, reaching out to previous customers and potential new customers, and managing the receipt and subsequent distribution of plants. In previous years, this sale has been responsible for distributing thousands of plants to county residents.

Susan Thomas, the previous district administrator, worked closely with Amy Tarlow Lewis, the previous Program Manager, to put together MCD's virtual spring workshops on no till farming practices, creating pollinator habitat and identifying and managing invasive species. All three workshops attracted a global audience of 50-120 people (with 75-130 registered), from

Eastern MA. Amy and Susan worked with the Board of Supervisors to select speakers and develop the online process for marketing and delivering the spring content.

Andrea Grossman, the current district administrator, has worked with Kathie Becker, the chair of the district, to put together a workshop and presentation on composting. One workshop was with a longtime volunteer, Grisha, Maziya, of Shady Farm, about how to compost with horse manure at his compost site at the Holliston Community Farm in Holliston, MA. The presentation was with an expert gardener, Gretel Anspach, from the Massachusetts Master Gardeners Association, and was on what compost is, how to compost, types of compost bins and more. Andrea has been collaborating with professionals from multiple organizations to put on programs that concern climate change. Programs include:

- Climate change presentation with Harvey Leonard, Chief Meteorologist Emeritus of WCVB-DT/TV. This event has almost thirty people registered for the event so far.
- Invasive plants and animals presentation with Jane Maloney, the Land Manager of SVT
- Pollinator presentation with Giancarla of The Bumblebee Project
- A growing mushrooms workshop with Andrew Mintz of White Pond Farm and Elizabeth Almeida of Fat Moon Mushrooms
- Climate change presentation with an associate professor, Ambarish Karmalkar, from University of Rhode Island

The Middlesex Conservation District has connections with several other local conservation organizations such as the Sudbury Valley Trustees, the Worcester County Conservation District, the local Natural Resources Conservation Service (NRCS) District Conservationist, and the Massachusetts Association of Conservation Districts. For this project specifically, we plan to reach out to local experts on native plants and meadowland implementation such as the Garden in the Woods and the local Audubon Society chapter to propose a partnership to increase our chances of success.

The MCD Board has extensive backgrounds in conservation and agriculture, a passionate interest in the land, and lifetimes of contacts within their respective communities to help inform and publicize District programming. Their information and roles in the project are covered below:

<u>Key Personnel and Roles in Project:</u>

Landscape Assistant

➔ Role in the project would include assisting with the physical transitioning of pilot plots from lawn to meadow and going to homeowners to monitor success of plant growth.

Andrea Grossman, District Administrator

- Bachelor's degree in Natural Resources Conservation with a concentration in Wildlife Ecology and Conservation
- Master’s degree in Environmental Studies with a concentration in Conservation Biology
- Worked several years as a gardener for several landowners in Lexington, Massachusetts
- Study abroad in Tanzania on Field techniques in wildlife field research

➔ Role in the project would include point of contact for the district, management of the budget, program's work plan, liaison for homeowners and landscapers, creation and management of workshops and demonstrations.

Katherine Becker, Chair

- Raised on a farm.
- Member of the Middlesex Conservation District for 40 years
- Member of the Boxborough Agricultural Commission
- Retired engineer with a background in botany
- Consultant in wetland biology
- Degree in Electrical Engineering from Worcester Polytechnic Institute
- Master's degree in Biology from Boston University

➔ Role in the project would include project oversight and employee supervision.

Miryam Becker, Supervisor, Clerk

- Bachelor's Degree in Civil Engineering from Worcester Polytechnic Institute (WPI) and a minor in Sustainability Engineering.
- Studied permaculture design while she lived on a working regenerative farm.
- Spent three years in the landscape design and construction industry.
- Successfully passed the Massachusetts Certified Landscape and Professional exam.
- Passionate about protecting the environment.

➔ Role in the project would include designing and overseeing pilot plots, project oversight, and employee supervision.

Margaret Delano, Supervisor

- Veterinarian serving in research, academic, and clinical settings.
- Brought up on a small farm, inherited and maintains that small farm (hay production, animals, gardens)
- Lifelong involvement in 4-H (member, volunteer, workshop leader).
- Member of town Agricultural Commission.
- Adjunct Professor, Mount Wachusett Community College, Veterinary Technician two-year program.

➔ Role in the project would include project oversight and employee supervision.

Elizabeth Austin, Supervisor

- Resident of Marlborough and former employee of Hutchin's Farm in Concord, MA.
- BS in Environmental Science from Framingham State.
- Worked for a Kiwi orchard and a vineyard in New Zealand.

➔ Role in the project would include project oversight and employee supervision.

PROJECT TIMELINE:

March 1 - March 31, 2024

- Buy supplies necessary to implement the project.
- The District Administrator will provide information on the MCD website and social media to advertise the new program. The District will partner with other organizations to increase outreach on the new program.
- Create job description for landscape assistant and advertise job position on MCD website, social media, and email lists.
- Present on workshop or presentation on the benefits of native plants for homeowners.
- Create a contract with homeowners on shared responsibilities for the success of the project.
- Provide and/or create educational materials for the public on our website and social media.

April 1 - April 30, 2024
- Homeowners will select locations of their lawn to transition their lawns into functioning native gardens. Miri Becker and Andrea Grossman will take detailed notes on the plot prior to beginning work regarding shade/sun levels, moisture levels and other factors.
- Supervisors will have a conversation with Homeowner/land steward regarding their goals and expectations.
- District Administrator and Miri Becker will map out each plot to help design the new garden.
- Soil tests will be conducted to determine the amount of carbon in the soil.
- The District Administrator and supervisors will go out to the selected plots and help landowners put down material to decrease/stop growth on lawns.
- Supervisors will interview landscape assistants and hire the leading candidate for the position. Landscape Assistant will start helping with the transitioning of pilot plots from lawn to meadow.
- The administrator will create a workshop or presentation with a speaker on best practices for transitioning lawns to native meadows for landscapers and landscape designers.

May 1 - May 31, 2024
- After grass has stopped growing and died, supervisors will use equipment to no-till the plots and distribute seed.
- Homeowners will water plots for the period of time it takes for plant growth and maturation.
- The Administrator, Supervisors, and landscape assistant will continue going to homeowners to monitor the success of plant growth in plots.
- The district will conduct outreach by workshops/presentations with homeowners, landscapers, and landscape designers to increase knowledge of the benefits of native plants and soil health.
- The landscape assistant will continue helping with physical transitioning of pilot plots from lawn to meadow.

June 1 - June 30, 2024
- The program will continue with future Healthy Soils Grant money to increase locations/plots.
- Evaluate plots to see which plants grew the best.
- Homeowners will water plots for the period of time it takes for plant growth and maturation.

August 1 - 31, 2024

- Supervisors will host a public tour and a tour for landscapers of pilot plots to demonstrate what a first-year native meadow can look like

PROJECT EVALUATION AND MONITORING:

The MCD's Board of Supervisors will be solely responsible for overseeing the pilot program, including the implementation and evaluation of the project. Supervisors meet monthly, excluding August, and the District Administrator will help provide any reports to the board during those meetings. Evaluation of the project will take place during these meetings and if it needs any corrective measures to be taken to correct errors, the supervisors will decide on what actions need to be taken.

The evaluation criteria for success of this project are:

- How many plots have been converted?
- What is the total square footage converted?
- Number of soil tests conducted.
- How well did the seeds germinate?
- What type(s) of seeds were the most successful?
- How happy are the homeowners/land stewards with the project?
- How many people participated in the relevant educational workshops?
- Has the outreach been conducted?
- How well was it received?
    - Registration numbers
    - Attendance numbers
    - Was there a follow up action or connection made by MCD?
    - Do participants deepen their involvement with the District?
        - Plant/seed sale
        - Other events/workshops
        - Donations
        - Volunteer activity

While the pilot plots will be transitioned free-of-charge for the homeowners who offer their land, it's possible that in future years we may be able to offer this service for a fee to local homeowners to generate revenue for the District. We could also be able to offer this service for free for lower income households who may benefit from the lower maintenance cost of a meadowland, compared to a lawn. In addition, this new pilot project may attract more attention to the District. Building the audience for the district will hopefully contribute to plant sales and donations to MCD or a sister organization 5013C.

Reporting

The district will provide quarterly reports as required by the EEA. The District Administer will be in charge of drafting these reports with help from the supervisors, as needed. These reports will provide the metrics mentioned above and any achievements for the program.

SUSTAINABILITY PLAN:

MCD relies heavily on the support it receives from grants. We receive both the Basic and Innovation Grants from the EEA. The Basic Grant is used to fund the district administrator and help fund operations, financial tracking, and strategic planning functions. The District uses Innovation Grants to fund outreach such as projects, workshops, presentations, and other programs. In addition to these grants, MCD also receives revenue from plant sales and donations. Occasionally, workshops will have a charge if there is not a reimbursement available from our Innovation Grants. Grants will remain necessary to continue the programs of the district and we will continue to apply to relevant grants as they become available.

MCD will continue to work with the Massachusetts Association of Conservation Districts (MACD) as well as other Massachusetts Conservation Districts, residents, land owners, and volunteers. Volunteers make up the majority of MCD's workforce as our Supervisor and plant sales positions are all voluntary. We are hoping that as a result of this program, more community members will be willing to donate their time and support into the promotion of climate health. Dependant on program success, we may be able to create a revenue stream through the sale of native plants, equipment sales or rentals, workshops, etc.

Partners Involved and Role:

Town Libraries

- Access to location for workshops and presentations.
- Advertisement of programs and annual meetings.

Native Plant Nurseries

- Suppliers for native seeds and plants.

USDA NRCS

- Supplies the District with an office to work out of, equipment for projects
- Potential speakers for our programs.

MACD

- Helps advertise our programs.
- Helps provide assistance with outreach, education, technical assistance and other such activities that promote sustainability for the county.
- Connections to government activity.

Landscape Professionals

- Audience for our workshops, presentations, seminars, tours, and other such programs.
- Source of educational resources for the district.

Homeowners

- Customers for plant sales.
- Volunteers to help with district activities.
- Access to their land for the pilot project.
- Audience for our workshops, presentations, seminars, tours, and other such programs.

Farmers

- Volunteers to help with district activities.
- Locations for workshops.
- Potential audience and customers for programs and plant sales.

Municipal Departments

- Advertisement of programs.

Conservations NGO's, Including Land Trusts and Community Gardening Organizations

- Potential speakers for workshops, presentations, and other programs.
- Advertisements for programs.
- Current and potential partners.
- Partners for programs on conservation, the environment, water, soil, and other issues.

RISK ASSESSMENT FOR PROJECT, PARTNERS, TIMELINE:

Risks (R) associated with this overall plan and mitigation strategies (MS):

- R: Determine challenges in recruiting and establishing consistent involvement of property owners.
    - MS: Develop thorough information about goals and short-and-long term care and maintenance scenarios for the plantings.
    - MS: Develop recommended/helpful equipment list.
    - MS: Chart estimated time and financial obligations by month/season/year.
    - MS: Develop a brief back-up/plan B approach in case a property changes ownership.

- R: Develop effective orientation program, communication strategy, and troubleshooting helpline/website for landowners.
    - MS: Develop standard/predictable communication schedule tailored to property managers'/ owners' schedules/lifestyles.
    - MS: Develop FAQ portion of website.
    - MS: Offer periodic zoom or in person roundtable work-in-progress discussions.

- R: Consider the possibility of seasonal excessive rainfall or prolonged seasonal drought or unseasonal elevated temperatures.
    - Anticipate water runoff in areas where plots are being prepared.
        - Develop temporary compatible mini-berms if sloping plot(s) are involved.
    - Develop water conservation and short-term shade strategies especially as plots are initially established and seedlings need water/temporary shade.
        - Factor in if landowner/manager may/will need water barrel plan/water barrel access.

- R: Consider the role of severe winter weather on plantings' survival.
    - MS: Include safe fall mulching plans as needed for plantings/established plants.

- R: Assess and factor in effects of and control strategies for wildlife on plantings.
    - MS: Initially determine landowners'/plot owners' concerns for wildlife habitat.

- MS: Conduct initial assessments/accounts of wildlife presence.
- MS: Assess availability of temporary or long-term protective fencing.
- MS: Select plantings as deer-proof and rabbit-proof as appropriate.

Literature Cited:

U.S. Census Bureau. (2020). RACE. *Decennial Census, DEC Redistricting Data (PL 94-171), Table P1*. Retrieved January 30, 2024, from https://data.census.gov/table/DECENNIALPL2020.P1?g=050XX00US25017.

U.S. Census Bureau. (2022). Selected Social Characteristics in the United States. *American Community Survey, ACS 1-Year Estimates Data Profiles, Table DP02*. Retrieved January 30, 2024, from https://data.census.gov/table/ACSDP1Y2022.DP02?g=050XX00US25017.

U.S. Census Bureau. (n.d.). *Explore Census data*. Retrieved January 30, 2024, from https://data.census.gov/profile/Middlesex_County,_Massachusetts?g=050XX00US25017